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**PRELIMINARY
PARCEL EVALUATION DATA SUMMARY**

**PHASE 2C- PART I
SCREENING-LEVEL INVESTIGATION
ZONE 24: TODD SHIPYARD
PARCEL 215
NAS ALAMEDA
ALAMEDA, CALIFORNIA**

**CONTRACT NO. N62474-93-D-2151
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1.0 Introduction

Naval Air Station (NAS) Alameda has been designated for Base Realignment and Closure (BRAC). To facilitate the BRAC process, the Navy has initiated the Environmental Baseline Survey (EBS) process to assess potential environmental concerns associated with real estate parcels affected by BRAC. The EBS process incorporates a Phase 1 investigation to determine land-use, historic ownership as well as Phase 2 intrusive sampling investigations used to evaluate soil and groundwater for potential impacts.

This report presents the results of the Phase 2C Part I EBS for the Todd Shipyard within Zone 24, Parcel 215. Parcel 215 is the western segment of the Todd Shipyard Zone, at the northeastern edge of NAS Alameda (Figure 215-1). It is adjacent to NAS Alameda and was leased to Todd Shipyards Corporation for use in shipbuilding and repair operations. Parcel 215 was not included in the original Phase 1 and Phase 2 EBS due to uncertainty about property ownership. The current Phase 2C Part I investigation incorporates Phase 1 issues, land use, ownership and chemical screening investigations as well as standard Phase 2 sampling activities.

The EBS process includes a series of base-wide investigations designed to assess environmental impacts of base operations. IT Corporation (IT) conducted historical research and recommended the Parcel 215 Phase 2C investigation in its Zone 24 Parcel Evaluation Plan (PEP) (IT, 1998b). The PEP included recommendations for a Phase 2C Part I screening level investigation of soil and groundwater quality. Sampling conducted as directed by the PEP is the basis for this report.

The investigative tasks associated with the parcel-specific EBS sampling efforts have been conducted in accordance with the general intent of the Shell Work Plan (ERM-West, 1994) and the specific scope of the Zone 24-Parcel 215 PEP (IT, 1998b). The Zone 24-Parcel 215 PEP designated one zone-wide target area and five parcel-specific target areas in Parcel 215.

A base-wide sewer investigation program, designed to address the industrial, storm, and sanitary sewers, was conducted in parallel with the PEP sampling program. However, no sewer corridor samples were collected from Parcel 215. The base-wide sewer evaluation program is described in the Work Plan for Storm, Industrial, and Sanitary Sewer Sampling (IT, 1994).

A total of eighteen samples were taken from surface soil, subsurface soil and groundwater at this parcel. No zone-wide samples were specified for this parcel and no sampling was performed from the Oakland Estuary (Target Area 1, Figure 215-1). Eight samples were collected from the Wharf Staging Area along the Estuary Shoreline in the east section of the parcel (Target Area 2); three samples were collected from the former location of a warehouse (Target Area 3); four were collected from a central equipment storage area (Target Area 4); and three were collected from the location where an impoundment was once located (Target Area 5).

Recommendations for supplemental sampling, based on this Part I investigation are provided in Section 6.0. The Phase 2C Part II investigation will be conducted and the results of the Phase 2C Part II investigation will be presented in a Phase 2C Part II report. These Part I and Part II reports continue formats established by previous NAS Alameda Phase 2A and 2B Data Summary Reports (IT, 1998a).

1.1 Objective

The Phase 2C Part I investigation provides a preliminary evaluation of Parcel 215 with respect to soil and groundwater quality. Recommendations are included for the Phase 2C Part II investigation, which is designed to refine knowledge of the constituents present in Parcel 215's soil and groundwater.

The objectives of the parcel-specific sampling efforts at this site were to investigate and document the existing environmental conditions at Parcel 215. This Phase 2C Part I investigation constitutes an initial examination of the parcel for chemicals of concern. It is roughly equivalent to the earlier Phase 2A sampling conducted at NAS Alameda, but is designated Phase 2C sampling to clearly distinguish it from sampling conducted in the early phases of the EBS, and from follow-up sampling (Phase 2C Part II) which will be conducted in accordance with recommendations presented in this report.

1.2 Site Summary Data

A brief description of the location, history, and features of Parcel 215 is presented below.

Zone: 24

Parcel: 215

Qualitative parcel data such as building use, parcel utilities, PCB equipment and asbestos survey results as well as building environmental data are included in the Zone 24-Parcel 215 PEP (IT, 1998b).

Parcel Description

Parcel 215 is located in the northeast corner of the Main Base (Figure 215-1). The site is approximately 4.63 acres in size, 3.16 acres of, which is dry land, with the remainder of the parcel being subaqueous within the Oakland Estuary. The parcel was leased to Todd Shipyards, a private company, for ship repair support. Parcel 215 constitutes only a small portion of the Todd Shipyard operational area, with the majority of the shipyard operation located east of the parcel. Ownership of the property was retained by the Navy during Todd Shipyard operations. In 1970, the Navy transferred the parcel to private ownership but disputes arose regarding the transfer caused a reversal of the sale and the property reverted to U.S. Government ownership in 1995.

No buildings or other substantial improvements currently exist at Parcel 215, except for the peripheral structures of the Marginal Wharf (Pier 5). The parcel is currently leased by the City of Alameda for Ferry Terminal overflow parking and for recreational use as a dog walk park. The parking area is paved with a thin bituminous surface seal. The remainder of the parcel is covered with non-vegetated sandy soil or landscaping mulch.

No RCRA sites were identified on Parcel 215. Installation Restoration (IR) Program Site 20 includes much of the Oakland Estuary adjacent to Parcel 215, and forms the northern boundary of the parcel.

Former Warehouse 3 (Building 63): A building, identified from historical aerial photographs as Warehouse 3 and identified as Building 63 in later documentation, was formerly located at the eastern boundary of the parcel (Figure 215-1). Approximately one quarter of the building was located on Parcel 215 with the remainder of the structure on the adjacent Todd Shipyard property. The building was constructed in the early 1950s and appears to have remained active until approximately 1981. The building was removed from the parcel prior to 1989. The structure was a steel frame building with a concrete floor and was designated as a

warehouse on site maps. No additional information was found regarding the building's construction or use; and, for the purpose of this investigation, it is assumed that it was used for storage related to shipbuilding and maintenance.

Marginal Wharf (Pier 5): The Marginal Wharf (Pier 5) is a pier structure that supported repair and refit activities for deep-draft ocean-going vessels. Pier 5 is largely outside of the Parcel 215 boundary. Only about 200 feet of the western end, the west access ramp, and part of the east access ramp of Pier 5 are within the parcel (Figure 215-1). A floating dry dock was placed in operation at the eastern end of Pier 5, adjacent to Parcel 215, in 1968. This dry dock operation continues to the present day at this location. The Alameda Passenger Ferry terminal currently occupies the central section of Pier 5 (off Parcel 215).

Open Space: The parcel is currently devoid of substantial improvements except for the peripheral structures of the Marginal Wharf (Pier 5). Previously existing structures have been demolished and the parcel surface consists of a roughly graded open space. The parcel is currently used for Alameda Ferry Terminal overflow parking. The ferry terminal is located immediately east of Parcel 215. A dog walk park was recently opened by the city of Alameda.

Thirty percent of the parcel is a subaqueous part of the Oakland Estuary. The remainder of the parcel (70%) is undeveloped open ground used for parking. The open space currently is paved with a thin bituminous surface sealer or is covered with non-vegetated sandy soil. Based on historical aerial photographs, the areas within the open space west of former Building 63 (Warehouse 3) as well as adjacent to the west access ramp were once used for equipment storage. Two access ramps were constructed to access Pier 5 (Figure 215-1). Portions of these access ramps are within the open space of the parcel. Equipment staging areas were located adjacent to the west access ramp. No record of chemical storage, chemical spills, or incidents was found, although investigations of adjacent parcels suggest chemicals were potentially present at Parcel 215.

Former Surface Impoundment: A former surface impoundment was located south of the parcel (outside the parcel boundary) as identified from aerial photographs dated 1973 through 1989. The impoundment capacity and contents are not known. The impoundment area is being sampled due to possible connections between the impoundment and activities conducted at

Parcel 215. The impoundment was not identified as a storage area or receptor of oil, waste, or hazardous substances. The most probable use of the impoundment was for retention of surface runoff water or bilge water discharged from the ships docked at Todd Shipyard. The area is being sampled during this study to investigate the possible relationship between the impoundment and activities conducted at Parcel 215.

1.3 Sampling Chronology

The Phase 2C Part I samples taken from Parcel 215 were collected over the following periods:

- *Parcel Samples* - June 10-11, 1998
- *Zone Samples* - None collected during this phase
- *Sewer Corridor Samples* - None Collected during this phase

1.4 Summary of Sample Types

Table 215-1 presents a summary of sample collection data for Parcel 215. The location of each sampling point is shown on Figure 215-1.

- *Parcel Samples:* 7 Surface Soil Samples and 1 Field Duplicate,
7 Subsurface Soil Samples,
3 Hydropunch Groundwater Samples
- *Zone Samples:* None Collected
- *Sewer Corridor Samples:* None Collected

The Phase 2C Part I EBS samples for Parcel 215 were sent to the fixed-based laboratory and analyzed under USEPA Contract Laboratory Program (CLP) protocols. Samples were collected from the following target areas targeting the indicated media:

Target Area	Use	Surface Samples	Subsurface Samples	Groundwater Samples
1	Marginal Wharf	0	0	0
2	Wharf Staging Area	3	3	2
3	Former Warehouse Location (Building 63)	1	1	0
4	Central Equipment Storage	2	2	0
5	Former Impoundment Location	1	1	1

1.5 Field Variations from the Sampling Plan

Seven surface soil samples, seven subsurface soil samples, four hydropunch groundwater samples, one subsurface soil duplicate, and one groundwater duplicate were recommended in the sampling plan. During the field activities, three variances to the sampling plan were made:

- Subsurface obstructions, probably concrete rubble, prevented the collection of two Hydropunch groundwater samples from locations in Target Areas 2 and 3. One additional sample (215-0023) was taken to compensate for the obstructed location in Target Area 2.
- The duplicate groundwater sample recommended in the original sampling plan was not collected due to an extremely slow groundwater recharge rate.
- The location of the duplicate subsurface sample was changed from sample location 215-0012 to 215-0037.

1.6 IR Data Summary

Former IR Site 20 (Oakland Estuary) is located just north of the subaqueous Oakland Estuary portion of Parcel 215. Accumulated sediments on the estuary floor within former IR Site 20 contain a number of constituents of concern related to past and present industrial activities on the estuary. Previous sampling of estuary sediments by Todd Shipyards in accordance with dredging and waste discharge permits indicated that arsenic and mercury as well as oil and grease were present in the subaqueous sediment north of the Parcel 215 boundary. Data from the investigations at IR Site 20 were not included in the Parcel 215 PEP. It is reasonable to expect that conditions similar to those in former IR Site 20 exist on the portions of Parcel 215 that are within the Oakland Estuary. Potential remedial actions for Parcel 215 should be similar to those required at former IR Site 20.

1.7 RCRA Sites

No RCRA sites are located on Parcel 215. The status of RCRA related investigations at NAS Alameda are provided in the Comprehensive Guide to the EBS (IT, 1997).

1.8 Underground Storage Tanks/Fuel Lines

No evidence of underground storage tanks or fuel lines has been identified at Parcel 215. Neither the document reviews nor the site inspection performed in September 1997 identified any information indicating that underground tanks are or were present at this parcel.

2.0 Parcel Evaluation Findings

The findings presented in this section summarize field and analytical data collected during the Phase 2C Part I EBS parcel-specific sampling activities at Parcel 215. A complete listing of target analytes for each sample is presented in Table 215-1. A list of detected analytes is presented in Tables 215-2 and 215-3. Table 215-2 lists detected analytes according to types of analyses. Table 215-3 lists the detections in alphabetical order along with the 1996 preliminary Remediation goals (PRGs) and site background concentrations. Field duplicate sample results are not included in Table 215-3 but are listed on Table 215-2. Appendix A contains an ITEMS database printout of validated analytical results from the fixed-base laboratory. Appendix B contains a list of data qualifiers and data validation codes used with this data.

Detected analytes are evaluated against their PRGs and background concentrations. The PRGs for PCBs and some metals were changed between the 1996 and 1998 versions. Discussions of detected constituents in the text reflect evaluation using the 1998 PRGs.

2.1 Parcel Evaluation Plan Sampling

Seven surface soil samples, seven subsurface soil samples, and three hydropunch groundwater samples were collected from Parcel 215. As discussed in Section 1.5, the number of groundwater samples collected was two less than was specified in the Zone 24-Parcel 215 Evaluation Plan (IT 1998b) due to obstructions encountered in the subsurface soil. Sample locations are shown on Figure 215-1. PRG exceedence are depicted on Figure 215-2, Figure 215-3, and Figure 215-4 for surface, subsurface, and groundwater samples, respectively.

Parcel 215 Target Area 1 (Marginal Wharf)

Target Area 1 is within the Oakland Estuary. The character of sediments found within the estuary is expected to be similar to peripheral areas sampled by the IR Program during the IR Site 20 investigation. A review of data available from the IR Program indicates that the sediments within the estuary have been sufficiently sampled relative to the objectives of the EBS. No additional sampling was performed for this investigation.

Parcel 215 Target Area 2 (Wharf Staging Area)

The wharf staging area encompasses approximately 50,000 square feet. The soils in this area may have been impacted by materials staging activity. Additional impacts may have resulted from equipment preparation and wash down operations conducted in this area. A sump that was once located within the target area was sampled for PCBs in 1985 (HAZE Ltd., 1985) with a resulting detection of 2.8 mg/kg. The sump is no longer present at the site but samples were collected from the general area to evaluate potential impacts.

Three surface samples, three subsurface soil samples, and two Hydropunch groundwater samples were collected from Target Area 2. All 8 samplers were analyzed for total petroleum hydrocarbons (TPH), contract laboratory procedure (CLP) metals, pesticides/PCBs, and semi-volatile organic compounds (SVOCs). In addition to these constituents, the subsurface samples and groundwater samples were analyzed for volatile organic compounds (VOCs). Samples were collected at ground surface, 3 to 4 feet below ground surface bgs (subsurface soil) and 8 to 12 feet bgs (hydropunch).

Parcel 215 Target Area 2 Sampling Results

Three surface soil samples (215-0001, 215-0003, 215-0006), three subsurface soil samples (215-0002, 215-0004, 215-0007), and two hydropunch groundwater samples (215-0023, 215-0008) were collected from this target area. The analytical results presented in Tables 215-2 and 215-3 are summarized below.

- TPH as motor oil was detected in samples 215-0001, 215-0002, 215-0004, 215-0006, and 215-0007 at concentrations ranging from 47 mg/kg to 260 mg/kg. TPH as gasoline was detected in sample 215-0001 at an estimated concentration of 0.02 mg/kg, below the 1996 PRC risk-based screening level (RBSL) of 300 mg/kg. No RBSL has been determined for TPH as motor oil.
- TPH as motor oil was detected in water sample 215-0008 at a concentration of 1.6 mg/l. There is no RBSL for TPH as motor oil in water. TPH as gasoline was detected in water samples 215-0008 and 215-0023 at estimated concentrations of 0.04 mg/l and 0.05 mg/l, respectively. These detections are less than or equal to the RBSL for TPH as gasoline in water of 50 ug/l.
- No VOC detections were reported for the Target Area 2 soil samples.

- Estimated VOC concentrations of 1,1,1-trichloroethane (3 ug/l) and 2-butanone (2 ug/l) were reported for water sample 215-0008. An estimated VOC concentration of acetone was detected in sample 215-0023 at 23 ug/l. All Target Area 2 detected VOC concentrations in water were less than the May 1998 EPA Region 9 PRGs (U.S. EPA, 1998b).
- Fourteen SVOCs (mainly PAHs) were detected in the Target Area 2 surface and subsurface soils. Nine of the SVOC analytes were detected at concentrations less than the May 1998 EPA Region 9 PRGs (U.S. EPA, 1998). Two SVOCs, phenanthrene and benzo(g,h,i)perylene, which do not have PRGs were detected. Sample 215-0002 and 215-0004 reported phenanthrene detections at estimated concentrations of 0.94 mg/kg and 0.20 mg/kg, respectively. Sample 215-0004 also detected benzo(g,h,i)perylene at an estimated concentration of 0.3 mg/kg. Three SVOCs, benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthene were detected at concentrations, which exceeded PRGs. Benzo(a)anthracene was detected at an estimated concentration of 1.2 mg/kg in sample 215-0002, which exceeded the PRG of 0.56 mg/kg. Benzo(a)pyrene was detected in samples 215-0001 (0.068 mg/kg), 215-0002 (1.2 mg/kg), 215-0004 (0.81 mg/kg), and 215-0006 (0.11 mg/kg) at concentrations which exceeded the PRG of 0.056 mg/kg. Benzo(b)fluoranthene was detected in samples 215-0002 and 215-0004 at concentrations of 1.8 mg/kg and 0.83 mg/kg respectively, which are greater than the PRG of 0.56 mg/kg.
- Five SVOCs were detected in water sample 215-0023: 2-methylnaphthalene (3 ug/l), bis(2-ethylhexyl) phthalate (2 ug/l), di-n-butyl phthalate (7 ug/l), naphthalene (3 ug/l), and pyrene (3 ug/l). All detected SVOC concentrations in water were estimated values and less than the May 1998 EPA Region 9 PRGs.
- The following fifteen pesticides were detected in at least one of the Target Area 2 soil samples: DDD, DDE, DDT, aldrin, alpha-chlordane, dieldrin, endosulfan I, endosulfan II, endrin, endrin aldehyde, endrin ketone, gamma-chlordane, heptachlor epoxide, heptachlor, and methoxychlor. Only the reported concentration of aldrin at 0.032 mg/kg in sample 215-0002 exceeded the May 1998 EPA Region 9 PRG (0.025 mg/kg).
- The following nine pesticides were detected in water sample 215-0008: DDD, DDE, DDT, aldrin, endosulfan II, endrin, endrin ketone, gamma-chlordane, and heptachlor epoxide. All detected pesticide concentrations were less than the May 1998 EPA Region 9 PRGs except for DDT, aldrin, and heptachlor epoxide. The detected DDT concentration of 0.62 ug/l exceeded the PRG of 0.20 ug/l, the detected aldrin concentration of 0.09 exceeded the PRG of 0.004 ug/l, and the detected heptachlor epoxide concentration of 0.02 ug/l exceeded the PRG of 0.0074 ug/l. There were no reported pesticide detections for sample 215-0023.

- Aroclor-1016 was detected in subsurface soil sample 215-0002 at a concentration of 0.079 mg/kg which is less than the EPA Region 9 PRG of 0.20 mg/kg. Aroclor-1260 was detected in subsurface samples 215-0002 and 215-0004 at concentrations of 0.37 mg/kg and 0.083 mg/kg, respectively. The EPA Region 9 PRG for Aroclor-1260 is 0.20 mg/kg which was exceeded in sample 215-0002.
- Aroclor-1260 was the only PCB detected in the water samples from Target Area 2. Sample 215-0008 had an Aroclor-1260 concentration of 1.0 ug/l, which exceeded the PRG of 0.034 ug/l. There were no reported PCB detections for sample 215-0023.
- The metal concentrations detected in the Target Area 2 soil samples are within background concentrations or below the May 1998 EPA Region 9 PRGs with the exception of chromium, lead, and nickel in subsurface soil samples 215-0002 and 215-0004. Chromium was detected at concentrations greater than its PRG of 210 mg/kg and its background concentration of 48.5 mg/kg, in samples 215-0002 (792 mg/kg) and 215-0004 (626 mg/kg). Lead was detected at concentrations greater than its PRG of 130 mg/kg and its background concentration of 118 mg/kg, in samples 215-0002 (491 mg/kg) and 215-0004 (241 mg/kg). Nickel was detected at concentrations greater than its PRG of 150 mg/kg and its background concentration of 46.7 mg/kg, in samples 215-0002 (899 mg/kg) and 215-0004 (394 mg/kg). Arsenic was detected at concentrations greater than its PRG of 0.38 mg/kg, but less than its NAS Alameda background level of 20.3 mg/kg in samples 215-0002 (17.4 mg/kg) and 215-0004 (4.3 mg/kg).
- The metals detected in Target Area 2 water samples 215-0008 and 215-0023 were all within background concentrations or less than the May 1998 EPA Region 9 PRGs with the exception of antimony and lead. Antimony concentrations of 22.9 ug/l (215-0008) and 40 ug/l (215-0023) exceeded the May 1998 EPA Region 9 PRG of 15 ug/l. Reported lead concentrations of 19.4 ug/l in sample 215-0008 and 4.2 ug/l in sample 215-0023 were greater than the PRG of 4.0 ug/l. Arsenic was detected at concentrations which were greater than the May 1998 EPA Region 9 PRG of 0.0045 ug/l, but less than the background concentration of 28.4 ug/l in samples 215-0008 (80.4 ug/l) and 215-0023 (15.9 ug/l).

Parcel 215 Target Area 3 (Former Warehouse No. 3 - Building 63)

Former Warehouse No. 3 (Building 63) was a 40,000 square foot structure, 12,000 square feet of which was located on Parcel 215. The building was constructed across the western boundary line of the property. Soils and groundwater were potentially impacted by equipment handling and material storage related to warehouse operations.

Sampling at Target Area 3 consisted of 1 surface soil sample and 2 subsurface soil samples, including one duplicate. The surface soil sample was analyzed for TPH, CLP metals, pesticides/PCBs, and SVOCs. The subsurface soil samples were analyzed for these constituents plus VOCs.

Parcel 215 Target Area 3 Sampling Results

One surface soil sample (215-0009) and one subsurface sample (215-0010) and its duplicate (215-0021) were collected from this target area. The analytical results presented in Tables 215-2 and 215-3 are summarized below.

- TPH as motor oil was detected in all three samples at concentrations ranging from 79 mg/kg in sample 215-0021 to 450 mg/kg in sample 215-0009. There is no RBSL for TPH as motor oil in soil. TPH as gasoline or diesel was not detected.
- No VOC detections were reported for the Target Area 3 soil samples.
- Sixteen SVOCs (mainly PAHs) were detected in Target Area 3 surface and subsurface soils. Nine of the SVOC analytes were detected at concentrations less than the May 1998 EPA Region 9 PRGs (U.S. EPA, 1998b). Three SVOCs that do not have EPA PRGs (acenaphthalene, phenanthrene, and benzo(g,h,i)perylene) were detected. Samples 215-0009 and 215-0021 had acenaphthylene detections at estimated concentrations of 0.33 mg/kg and 0.085 mg/kg, respectively. Samples 215-0009 and 215-0021 had phenanthrene detections at estimated concentrations of 1.1 mg/kg and 0.065 mg/kg, respectively. Benzo(g,h,i)perylene was detected in sample 215-0021 at an estimated concentration of 0.089 mg/kg. Four SVOCs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene, were detected at concentrations which exceeded PRGs. Benzo(a)anthracene was detected at an estimated concentration of 1.1 mg/kg in sample 215-0009, which exceeded the PRG of 0.56 mg/kg. Benzo(a)pyrene was detected in samples 215-0009 (1.2 mg/kg) and 215-0021 (0.31 mg/kg) at concentration which exceeded the PRG of 0.056 mg/kg. Benzo(b)fluoranthene was detected in sample 215-0009 with a concentration of 1.3 mg/kg, which is greater than the PRG of 0.56 mg/kg. Dibenzo(a,h)anthracene was detected in sample 215-0009 at an estimated concentration of 0.11 mg/kg, which exceeded the PRG of 0.056 mg/kg.
- The following eleven pesticides were detected in at least one of the Target Area 3 soil samples: DDD, DDE, DDT, aldrin, alpha-BHC, dieldrin, endrin, endrin ketone, gamma-chlordane, heptachlor epoxide, and methoxychlor. None of the reported pesticide detections exceeded the May 1998 EPA Region 9 PRGs.

- No PCB detections were reported for the Target Area 3 soil samples.
- The metal concentrations detected in the Target Area 3 soil samples are all within background levels or less than the May 1998 EPA Region 9 PRGs. Arsenic was detected at concentrations greater than the May 1998 EPA PRG (0.38 mg/kg), but less than background levels (20.3 mg/kg) in the three soil samples; arsenic concentrations ranged from 6.2 mg/kg to 8.3 mg/kg.

Parcel 215 Target Area 4 (Equipment Storage Area)

The equipment storage area is approximately 29,000 square feet and is located to the west of Building 63. The soils in this area may have been impacted by materials staging activity.

Two surface soil samples were collected from Target Area 4 and analyzed for TPH, CLP metals, pesticides/PCBs, and SVOCs. Two subsurface soil samples were collected and analyzed for these constituents plus VOCs.

Parcel 215 Target Area 4 Sampling Results

Two surface soil samples (215-0012 and 215-0014) and two subsurface soil samples (215-0013 and 215-0015) were collected from this target area. The analytical results presented in Table 215-2 and 215-3 are summarized below.

- TPH as motor oil was detected in all four samples at concentrations ranging from 83 mg/kg in sample 215-0015 to 350 mg/kg in sample 215-0013. There is no RBSL for TPH as motor oil in soil. TPH as gasoline or diesel was not detected.
- No VOC detections were reported for the Target Area 4 soil samples.
- Nine PAHs were detected in the two Target Area 4 surface soil samples. One other SVOC, bis(2-ethylhexyl)phthalate, was detected in subsurface soil sample 215-0013. All the SVOC detections are less than the May 1998 EPA Region 9 PRGs (U.S. EPA, 1998b) with the exception of benzo(a)pyrene and phenanthrene. Benzo(a)pyrene was detected in samples 215-0012 and 214-0014 at concentrations of 0.18 mg/kg and 0.059 mg/kg, respectively, both of which exceeded the PRG of 0.056 mg/kg. Phenanthrene does not have an EPA PRG and was detected at an estimated concentration of 0.074 mg/kg in sample 215-0012.
- Pesticides DDD and DDT were detected in subsurface soil sample 215-0015 at concentrations of 0.004 mg/kg and 0.005 mg/kg, respectively. Aldrin, alpha-BHC, dieldrin, and heptachlor epoxide detections were estimated for surface soil

sample 215-0012. All the pesticide detections were less than the May 1998 EPA Region 9 PRGs.

- No PCB detections were reported for the Target Area 4 soil samples.
- The metal concentrations detected in the Target Area 4 soil samples are all within background levels or less than the May 1998 EPA Region 9 PRGs. Arsenic was detected in all four samples at concentrations ranging from 4.4 mg/kg to 7.5 mg/kg which are greater than the August 1996 EPA Region 9 PRG of 0.38 mg/kg but less than its NAS Alameda background concentration of 20.3 mg/kg.

Parcel 215 Target Area 5 (Impoundment)

This target area was identified from historical air photos, which show an impoundment area containing an unidentified liquid existing for several years at the southern margin of the parcel. The size of the impoundment varied over the years and was approximately 21,000 square feet at its maximum. The unidentified liquid may have been surface water runoff or bilge water or other liquids discharged from the ships docked at Todd Shipyard.

Sampling at Target Area 5 consisted of 1 surface soil sample, 1 subsurface soil sample, and 1 hydropunch groundwater sample. The surface soil sample was analyzed for TPH, CLP metals, pesticides/PCBs, and SVOCs. The subsurface soil sample and hydropunch groundwater samples were analyzed for these constituents plus VOCs.

Parcel 215 Target Area 5 Sampling Results

One surface soil sample (215-0016), 1 subsurface soil sample (215-0017), and 1 hydropunch groundwater sample (215-0018) were collected from this target area. The analytical results presented in Tables 215-2 and 215-3 are summarized below.

- TPH as motor oil was detected in surface soil sample (2315-0016) and subsurface soil sample (215-0017) at concentrations of 140 mg/kg and 870 mg/kg, respectively. No RBSL exists for TPH as motor oil. TPH as diesel was detected in sample 215-0017 at 350 mg/kg, below its RBSL of 3000 mg/kg.
- TPH as motor oil was detected in water sample 215-0018 at a concentration of 1.5 mg/l. There is no RBSL for TPH as motor oil in water. TPH as gasoline and TPH as diesel were not detected in sample 215-0018.
- No VOC detections were reported for the Target Area 5 soil samples.

- An estimated VOC concentration of acetone was detected in water sample 215-0018 at 4 ug/l, less than the May 1998 EPA Region 9 PRG for acetone of 610 ug/l.
- No SVOC detections were reported for the subsurface soil sample 215-0017. The following six SVOCs were detected at estimated concentrations in the Target Area 5 surface soil sample 215-0016: 1,2,4-trichlorobenzene, 1,4-dichlorobenzene, 2-chlorophenol, acenaphthene, fluoranthene, and pyrene. All the SVOC detections are less than the May 1998 EPA Region 9 PRGs (U.S. EPA, 1998b).
- Two SVOCs were detected in water sample 215-0018: bis(2-ethylhexyl)phthalate (2 ug/l) and di-n-butyl phthalate (1 ug/l). Both detected SVOC concentrations in water were estimated and less than the May 1998 EPA Region 9 PRGs.
- The following 6 pesticides were detected in soil samples 215-0016 and 215-0017: DDD, DDT, aldrin, endrin, gamma-chlordane and heptachlor epoxide. Endosulfan 2, endrin ketone, and endrin aldehyde were detected in sample 215-0016. Dieldrin and methoxychlor were detected in sample 215-0017. All the pesticide detections for the Target Area 5 samples were less than the May 1998 EPA Region 9 PRG.
- Aroclor-1260, at a concentration of 0.16 mg/kg in sample 215-0016, was the only PCB detection for Target Area 5. The PCB-1260 concentration was less than the May 1998 EPA Region 9 PRG of 0.20 mg/kg.
- There were no reported pesticide or PCB detections for water sample 215-0018.
- The metal concentrations detected in the Target Area 5 soil samples are all within background levels or less than the May 1998 EPA Region 9 PRGs with the exception of lead and vanadium. Lead was detected in surface soil sample 215-0016 with a concentration of 200 mg/kg, which exceeded the PRG of 130 mg/kg and the background concentration of 118 mg/kg. The detected concentration of lead in sample 215-0017 (10.5 mg/kg) was less than the PRG and the background concentration. Vanadium was reported in samples 215-0016 and 215-0017 at concentrations of 561 mg/kg and 23 mg/kg, respectively. The background for vanadium is 40.9 and the PRG is 520 mg/kg, both of which were exceeded by sample 215-0016. Arsenic was also detected in the two soil samples at concentrations of 9.8 mg/kg and 3.2 mg/kg which are both greater than the May 1998 EPA Region 9 PRG of 0.38 mg/kg but less than the NAS Alameda background concentration of 20.3 mg/kg.

- The metals detected in Target Area 5 water samples 215-0018 were all within background levels or less than the May 1998 EPA Region 9 PRGs with the exception of manganese and thallium. The reported manganese concentration of 2260 ug/l in sample 215-0018 was greater than the PRG of 1700 ug/l. The thallium concentration of 3.20 ug/l in sample 215-0018 was greater than the PRG (2.6 ug/l). Arsenic was detected in sample 215-0018 at a concentration of 28.8 ug/l, greater than the May 1998 EPA Region 9 PRG of 0.045 ug/l, but below the NAS Alameda background concentration of 28.4 ug/l.

2.2 Zone Samples

No zone-wide target area samples were collected from this parcel as specified in the Zone 24-Parcel 215 PEP (IT, 1998b), although the target analytes from the parcel-specific target areas include constituents normally associated with rail line operation. Information gathered from the Parcel 215 target areas during this investigation will be utilized to evaluate the zone-wide target area.

2.3 Sewer Corridor Sampling

The Work Plan for Storm, Industrial, and Sanitary Sewer Sampling (IT, November 1994) did not require the collection of Sewer Corridor Samples from Parcel 215.

3.0 Data Quality/Data Validation

The fixed-base laboratory analytical data collected from this parcel are acceptable as reported. The CLP analytical data has passed U.S. EPA Level III data validation and review. In accordance with the Shell Work Plan (ERM-West, 1994), 10 percent of all CLP data has undergone a Level IV data validation.

All data have been collected, analyzed, checked, and prepared in accordance with the PRC modification to the Quality Assurance Project Plan (QAPjP). The QAPjP for the EBS PEP sampling and analysis has been adopted from the ongoing base-wide IR program. This QAPjP was originally written by Canonie Environmental (Canonie, 1990), and has generally been supplanted by Section 3 of a Work Plan Addendum (Addendum) prepared by PRC and Montgomery Watson (1993).

No data were rejected during the validation process for samples collected from this parcel. During data validation, certain data were determined to be estimated values for the following reasons:

- Analyses were carried out past contract-required holding time
- Calibration precessions were outside contract-required control limits
- Extraction procedures used were not approved by contract
- Matrix effects
- Matrix spike and matrix spike recoveries and precision were outside contract required control limits
- Surrogate recoveries were outside contract-required control limits
- Laboratory control sample precessions were outside contract-required control limits
- Result precessions were outside contract-required control limits.

The validated data were compared to the sampling objectives. Certain SVOC data were determined to be unusable because the detection limits were above the PRGs for the compounds. The data qualifications assigned during validation and the results of the review following validation are discussed below for each analytical test group.

3.1 Volatile Organic Compounds

Data validation identified missed holding times and calibration standard precision problems associated with VOC analyses. The contract-required holding time for VOC analysis is 10 days but the QAPjP holding time requirement is 14 days. The following samples were analyzed for VOCs on the 13th day after sample receipt: 215-0002, 215-0004, 215-0007, 215-0008, 215-0010, 215-0013, 215-0015, 215-0017, and 215-0022. The following samples were analyzed on the 12th day after sample receipt: 215-0018, 215-0023, 215-0024, and 215-0025. Because of the discrepancy in holding time requirements, the data are not considered estimated, but the validation finding is noted.

All soil samples results for the VOC analyte bromomethane and all water samples results for the VOC analyte bromoform were determined to be estimated values because the initial calibration standard precision exceeded the contract-required limit. The data useability review determined that the qualified bromomethane soil data and bromoform water data met the sampling objectives.

3.2 Semivolatile Organic Compounds

Data validation identified four problems associated with certain SVOC analyses:

- Missed holding times
- Calibration standard precision limit exceedences
- Extraction method incorrect for contract requirements
- Matrix effects.

The contract-required holding time for SVOC analysis is 10 days but the QAPjP holding time requirement is 14 days. The following samples were analyzed on the 11th day after sample receipt: 215-0001, 215-0002, 215-0016, and 215-0017. Water sample 215-0008 was analyzed on the 13th day after sample receipt. The following samples were analyzed on the 12th day after sample receipt: 215-0018, 215-0023, 215-0024, and 215-0025. Because of the discrepancy in holding time requirements, the data are not considered estimated, but the validation finding is noted.

Detection limits for sample number 215-0016 from Target Area 5 were elevated due to matrix effects. The following SVOC compounds were detected in the sample below the detection limit and therefore the reported values are estimated: phenol, n-nitro-di-n-propylamine, 4-chloro-3-methylphenol, 4-nitrophenol, 2,4-dinitrotoluene, and pentachlorophenol.

The SVOC results for the following analytes were determined to be estimated values because the initial calibration precision exceeded the contract-required control limit of 20.5 percent:

- 2,4-dichlorophenol, 2,4-dinitrotoluene, and pentachlorophenol in all soil and water samples
- 2,4-dinitrophenol in samples 215-0001, 215-0002, 215-0016, 215-0017, and 215-0024

- 2,4-dinitrophenol and pentachlorophenol in samples 215-0018 and 215-0023.

Detection limits for SVOCs for sample numbers 215-0016 and 215-0017 from Target Area 5 were elevated due to matrix effects and any reported results are estimated. Results for analytes reported as not detected are not useable for this investigation because they exceed the PRG values.

3.3 Petroleum Hydrocarbons

Sample 215-0002 was chosen as the matrix spike/matrix spike duplicate sample to represent the soil samples submitted for TPH analysis as a group. The TPH-as-diesel result for sample 215-0002 was determined to be an estimated value because of matrix spike/matrix spike duplicate recoveries higher than the contract-required control limits. The high recovery was attributed by the laboratory to the presence of motor oil, which interfered with the quantitation of the diesel component. Because the sample is considered representative of all the soil samples submitted together for the purpose of matrix interference testing, the TPH-as-diesel results for the following samples are also considered to be estimated values: 215-0001, 215-0016, and 215-0017. The diesel results for these samples are useable because the diesel spike recoveries are elevated, indicating that the actual level of diesel in the samples is less than or equal to the reported level.

The TPH-as-motor oil results for samples 215-0008 and 215-0013 were determined to be estimated values due to surrogate recoveries outside the contract-required control limit. The recovery for sample 215-0008 (56 percent) was less than the lower recovery limit (60 percent) and the recovery for sample 215-0013 (165) was greater than the higher recovery limit (140 percent). The data are useable for the purposes of this investigation.

Petroleum hydrocarbons, quantified as gasoline, were detected in the trip blanks (samples 215-0022 and 215-0024) at concentrations of 0.09 mg/L and 0.01 mg/L, respectively. This does not affect the usability of the gasoline data, but should be taken into consideration when gasoline detections are evaluated.

3.4 Pesticides and Polychlorinated Biphenyl Compounds

Sample 215-0004 was chosen as the matrix spike/matrix spike duplicate sample to represent the soil samples submitted for pesticide analysis as a group. The results for sample 215-0004 for pesticides were determined to be estimated values because matrix spike/matrix spike duplicate

recoveries and/or precision for the six spike components did not meet the contract-required control limits. The low recoveries were attributed, by the laboratory, to the presence in the sample of PCB-1260, which interfered with the quantitation of the pesticide components. Sample 215-0002, in the same sample group, and 215-0016, in a second sample group, also contained detectable quantities of PCB-1260. The pesticide data for the three samples containing PCB-1260 are useable as estimated values.

The matrix spike/matrix spike data are not useful for evaluating pesticide data for samples that do not contain PCB-1260; laboratory control samples and surrogate recovery have been reviewed to determine the usability of the pesticide data. The 4,4'-DDT results for the following samples were determined to be estimated values because the laboratory control sample precision did not meet the contract-required control limit: 215-0001, 215-0002, 215-0016, and 215-0017. The 4,4'-DDT data are useable as estimated values. All other pesticide data are useable as reported. During validation it was determined that the calibration percent difference for certain pesticide compounds was greater than the contract required 25 percent. The validation determines that the results are useable as reported. The three samples listed below were affected:

- The results for gamma-chlordane, 4,4'-DDT, dieldrin, and endrin ketone for sample 215-0004
- The results for heptachlor epoxide for sample 215-0008
- The results for dieldrin, endrin ketone, heptachlor epoxide, and methoxychlor for sample 215-0009.

4.0 Adjacent Parcels

Parcel 215 is bounded to the south by Alameda Point Parcel 62 (Zone 8). The main Todd Shipyard area, east and north of Parcel 215, is not under Navy ownership and is held by various public and private entities.

5.0 Human Health Risk Screening Analysis

5.1 Tier 1 Screening Analysis

A Tier 1 screening analysis was conducted on the Phase 2C Part I soil and groundwater sample data in order to evaluate potential impacts of detected constituents. The Tier 1 screen was

conducted as directed in the Tiered Screening Analysis Technical Memorandum (PRC, 1997). The Tiered Screening methodologies are discussed in Section 5.0 of the Comprehensive Guide to the EBS, NAS Alameda (IT, November 1997). Tier 1 Screen Risk Calculations for soil (Appendix C, Tables 1 and 2) indicate a potential Cancer Risk value of 5.74×10^{-5} and a Hazard Index of 5.42. Tier 1 Screen Risk Calculations for water (Appendix C, Tables 1 and 2) indicate a potential Cancer Risk value of 1.86×10^{-3} and a Hazard Index of 20.4.

The cancer risk values for soil was determined to be below the 1×10^{-4} criteria presented in the 1995 BRAC Cleanup Guidebook. The cancer risk value for water was determined to be greater than the 1×10^{-4} criteria presented in the 1995 BRAC Cleanup Guidebook. The hazard index values of 5.42 (soil) and 20.4 (water) exceed the established threshold (1.0), indicating that there is a potentially excessive risk associated with elevated metal concentrations on Parcel 215. Based on the results of Tier 1 screening, Parcel 215 was subsequently subjected to the Tier 2 screening process.

The Tier 1 Screening Hazard calculations for individual constituents (Appendix C, Table 1) show that lead and nickel are the major contributors to the hazard index value for soil, accounting for 66% of the value. Five additional metal concentrations (aluminum, antimony, arsenic, manganese, thallium, and vanadium) also contribute to the Hazard Index exceedence. The Hazard Index threshold was exceeded individually by lead and nickel at values of 1.92 and 1.67, respectively. The remaining metals were not present at high enough concentrations to exceed the Hazard Index threshold individually. However, the summation of the hazard from the other six metals yields a value greater than 1.0.

The highest detections of lead and nickel were from a subsurface soil samples 215-0002 and 215-0004 collected from Target Area 2 (Wharf Staging Area). An elevated concentration of lead was also detected in the surface soil sample 215-0016 from Target Area 5 (Former Impoundment).

The Tier 1 Screening Hazard calculations for individual constituents (Appendix C, Table 1) show that antimony, arsenic, lead, manganese and thallium are the major contributors to the Hazard Index value for water, accounting for 85% of the value. The Hazard Index threshold for water of 1.0 was exceeded by each of these five metals. Additional metals contributing to the hazard index exceedence include barium, copper, molybdenum, nickel, and vanadium. Naphthalene

concentrations in water also contributed to the exceedence of the Hazard Index threshold. These constituents were not present at high enough concentrations to exceed the Hazard Index threshold individually. However, the summation of their hazard values is greater than 1.0.

Hydropunch groundwater samples 215-0008 and 215-0023 contained high metal concentrations of antimony and lead. These samples were both from Target Area 2 (Wharf Staging Area). High concentrations of manganese and thallium were reported for sample 215-0018 from Target Area 5 (Former Impoundment).

The Phase 2C Part I sampling did not adequately define the extent of detected compounds on Parcel 215. This parcel, although not identified as a potential source area by the IR Program, should be further examined as part of that program. Additional EBS sampling is recommended as described in Section 6.0. Results from the Tier 2 Screening are presented below.

5.2 Tier 2 Screening Analysis

A Tier 2 screening evaluation was conducted for Parcel 215, Todd Shipyard, since the residential Tier 1 cumulative risk and hazard index (HI) exceeded 1.0E-04 and 1.0, respectively; the cumulative risk and HI for residential exposure to soil and groundwater were 1.92E-03 and 25.8, respectively. For the Tier 2 screening evaluation, the same chemicals identified and summarized in the Tier 1 screening process were considered as preliminary chemicals of concern (COCs); however, the preliminary COCs were thoroughly reexamined. In general, the screening involved robust statistical comparisons for inorganic chemicals detected within the Parcel to those identified as background (ambient) in the Alameda Point vicinity. The methodology used was the same as that presented in the *Statistical Methodology for Background Comparisons Technical Memorandum* (PRC 1995) for inorganic analytes. Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs in soil based on statistical comparisons. However, since too few samples were available for groundwater, robust statistical comparisons could not be conducted; instead, the site maximum detected and average concentrations were compared to background maximum detected and average concentrations, respectively. If both the site maximum detected and average concentrations exceeded the background maximum detected and average concentrations, respectively, the chemical was considered a COC and quantitatively evaluated in the Tier 2 screening evaluation. Based on the background comparisons, aluminum, antimony, barium, chromium, lead, manganese, thallium, and zinc were

eliminated as COCs in groundwater. All organic chemicals detected in soil and groundwater were retained as COCs and quantitatively evaluated in the Tier 2 screening evaluation.

The proposed reuse of Parcel 215, Todd Shipyard, by the Alameda Reuse and Redevelopment Authority (ARRA) is recreational; however, the residential and occupational exposure scenarios were evaluated and provided for informational purposes. Exposure pathways evaluated for the residential exposure scenario include: incidental ingestion of soil, dermal contact with soil, inhalation of particulates and volatile organic chemicals (VOCs) from soil, ingestion of groundwater, dermal contact with groundwater, and inhalation of VOCs from groundwater. Exposure pathways evaluated for the recreational exposure scenario include: incidental ingestion of soil, dermal contact with soil, and inhalation of particulates and VOCs from soil. Exposure pathways evaluated for the occupational exposure scenario include: incidental ingestion of soil, dermal contact with soil, inhalation of particulates and VOCs from soil, and inhalation of VOCs from groundwater into enclosed-space air. Exposure parameters used to estimate the residential, recreational, and occupational chronic daily intakes (CDI) were based on conservative U.S. Environmental Protection Agency (EPA) standard default exposure parameters, developed for the general population. These exposure parameters were used with EPA-derived intake algorithms to estimate upper-bound, or high end, chemical-specific risks and HIs for the maximally exposed individual. Exposure parameters and intake algorithms used in the Tier 2 screening evaluation are presented in the *Methodology for the Human Health Risk-Based Tiered Screening Analysis Technical Memorandum* (PRC 1997).

Exposure parameters are identical for EPA and California EPA (Cal/EPA) except for the dermal contact with soil exposure pathway. For example, EPA guidance (1994) recommends using dermal absorption factors of 0.03 (3 percent) for arsenic, 0.001 (0.1 percent) for all other inorganic chemicals, and 0.01 (1 percent) for organic chemicals. Whereas, the Cal/EPA Department of Toxic Substances Control (DTSC) recommends the following chemical-specific dermal absorption factors (DTSC 1994): 0.01 (1 percent) for inorganic chemicals, 0.1 (10 percent) for organic chemicals, 0.15 (15 percent) for polycyclic aromatic hydrocarbons (PAHs), 0.05 (5 percent) for chlorinated insecticides, 0.25 (25 percent) for pentachlorophenol, 0.03 (3 percent) for polychlorinated dibenz-p-dioxins and furans, 0.15 (15 percent) for polychlorinated biphenyls (PCBs), 0.001 (0.1 percent) for cadmium, 0.03 (3 percent) for arsenic, 0 (0 percent) for hexavalent chromium, and 0.1 (10 percent) for cyanide. To present the differences between EPA

and Cal/EPA guidance, CDIs were calculated separately; however, only EPA CDIs are provided in the supporting tables for the Tier 2 screening evaluation.

Qualitative and quantitative toxicity and chemical-specific information was gathered for all COCs identified in soil and groundwater at Parcel 215 (Appendix C). Detailed toxicity profiles for each COC are presented following the Tier 2 risk and HI tables. Sources of reference doses (RfDs) and cancer slope factors (CSFs) for the Tier 2 screening evaluation included the Integrated Risk Information System (IRIS) (EPA 1998), the Health Effects Assessment Summary Tables (HEAST) (EPA 1997), and the cancer potency factors (CPFs) derived by the Office of Environmental Health Hazard Assessment (OEHHA) (1994). RfDs and CSFs provided by IRIS or HEAST were used to estimate the EPA HIs and risks, respectively; RfDs and CSFs from all three sources were used to estimate the Cal/EPA HIs and risks, respectively. Toxicity values used in the calculation of Cal/EPA risks and HIs are presented in parentheses in the supporting tables for the Tier 2 screening evaluation.

According to EPA guidance (1989), toxicity values for the oral route of exposure are expressed as administered dose. To evaluate dermal exposures, oral toxicity values based on administered dose must be converted to absorbed dose because of a fundamental difference between gastrointestinal (GI) and dermal absorption; this is necessary because it would not be conservative to assume that the oral administered dose was entirely absorbed by the GI tract. To adjust the EPA-derived oral toxicity value, the fractional dose absorbed from the intestinal lumen must be estimated; methods for transforming the oral toxicity factors based on administered dose to absorbed dose are outlined in EPA guidance (1989). In contrast, Cal/EPA (1998) recommends the use of unadjusted oral toxicity values for evaluating dermal exposure. Therefore, in the calculation of EPA risks and HIs, a conservative GI absorption factor of 20 percent was assumed for inorganic chemicals, 50 percent for Semivolatile organic chemicals (SVOCs), and 80 percent for volatile organic chemicals (VOCs); unadjusted oral toxicity values were used in the estimation of Cal/EPA risks and HIs for the dermal exposure pathway.

Use of route-to-route extrapolation is recommended by Cal/EPA when toxicity values are unavailable for a given route of exposure. According to Cal/EPA (1998), "oral cancer slope factors and reference doses were used for both oral and inhaled exposures for organic compounds lacking inhalation values. Also, inhalation slope factors and inhalation reference doses were

frequently used for both inhaled and oral exposures of organic compounds lacking oral values." This practice does not follow EPA guidance (1989) but may result in more conservative cumulative risks and HIs. In the calculation of Cal/EPA chemical-specific risk and HIs, route-to-route extrapolation was conducted when toxicity values for organic chemicals were unavailable for a given route of exposure; route-to-route extrapolation of toxicity values was not conducted in the calculation of EPA-specific risks and HIs.

EPA and Cal/EPA residential, occupational, and recreational risks and HIs were calculated in accordance with EPA guidance (1989). Chemical-specific, exposure pathway-specific, and cumulative risks and HIs for the residential exposure scenario are presented in Tables 3 through 10. Chemical-specific, exposure-pathway specific, and cumulative risks and HIs for the recreational exposure scenario are presented in Tables 11 through 14 (Appendix C). Chemical-specific, exposure pathway-specific, and cumulative risks and HIs for the occupational exposure scenario are presented in Tables 15 through 20 (Appendix C).

Cumulative EPA and Cal/EPA residential soil risks are 2.9E-05 and 1.2E-04, respectively, due primarily to exposure to benzo(a)anthracene, benzo(a)pyrene, and dibenzo(ah)anthracene via ingestion of and dermal contact with soil. Cumulative EPA and Cal/EPA groundwater risks are both 1.5E-03 due to exposure to arsenic via incidental ingestion of groundwater. Cumulative EPA and Cal/EPA residential soil HIs are both 1.4 due primarily the incidental ingestion of antimony, manganese, nickel, thallium, and vanadium from soil. Cumulative EPA and Cal/EPA HIs for groundwater are both 8.8 due to the incidental ingestion of arsenic from groundwater.

Based on total dissolved solid (TDS) measurements and minimum well seal requirements, groundwater is not suitable for potential municipal or domestic use, and is of very limited beneficial use to support potential agricultural or industrial use. Residential direct exposure pathways are, therefore, incomplete; however, since 1,1,1-trichloroethane, acetone, and methyl ethyl ketone are present in groundwater, the inhalation of VOCs from groundwater into enclosed-space air is potentially complete and was quantitatively evaluated. The cumulative EPA and Cal/EPA groundwater HIs for indirect residential exposure are both 0.00002 due to acetone. Also, since the cumulative residential HI for soil exceeded 1.0 for both EPA and Cal/EPA, the HI was segregated based on target organ specificity. The resulting target organ-specific HIs for EPA are as follows: 0.23 for the blood due to antimony; 0.28 for the central nervous system

(CNS) due to manganese; 0.18 for effects on body weight due to nickel; 0.15 for the skin due to thallium; and 0.38 for other effects due to antimony and thallium. The resulting target organ-specific HIs for Cal/EPA are as follows: 0.23 for the blood due to antimony; 0.29 for the CNS due to manganese; 0.19 for effects on body weight due to nickel; 0.16 for the skin due to thallium; and 0.39 for other effects due to antimony and thallium.

Cumulative EPA and Cal/EPA recreational soil risks are 6.4E-06 and 6.2E-05, respectively, due primarily to exposure to benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(ah)anthracene via ingestion of and dermal contact with soil. Cumulative EPA and Cal/EPA recreational soil HIs are 0.041 and 0.068, respectively, due primarily to the incidental ingestion of and dermal contact with antimony, manganese, nickel, thallium, and vanadium from soil.

Cumulative EPA and Cal/EPA occupational soil risks are 5.1E-06 and 3.4E-05, respectively, due primarily to exposure to benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(ah)anthracene via ingestion of and dermal contact with soil. Cumulative EPA and Cal/EPA occupational soil HIs are 0.065 and 0.082, respectively, due primarily the incidental ingestion of and dermal contact with antimony, manganese, nickel, thallium, and vanadium from soil. The cumulative EPA and Cal/EPA occupational groundwater HIs due to exposure via inhalation of VOCs from groundwater into enclosed-space air are both 0.0000048.

Cumulative residential, recreational, and occupational risks for direct exposure to soil do not exceed the target level of 1E-04; recreational and occupational HIs and residential segregated HIs for direct exposure to soil do not exceed 1.0. Furthermore, due to high concentrations of TDS and minimum well seal requirements, residential direct exposure to groundwater may be incomplete. Therefore, indirect exposure via inhalation of VOCs from groundwater into enclosed-space air was quantitatively evaluated for the residential and occupational exposure scenarios. Residential and occupational HIs were below 1.0; carcinogenic VOCs were not detected in groundwater. Based on the Tier 2 human health screening evaluation, Parcel 215 was reclassified from an ECP category 7 to a category 3; Parcel 215 is suitable to transfer.

6.0 Conclusions/Recommendations

The Parcel 215 Evaluation Plan identified 5 parcel-specific target areas and one zone-wide target

area within the parcel boundaries. No zone-wide samples were specified for this parcel. No sampling was performed at Target Area 1. Eight samples were collected from Target Area 2; three from Target Area 3; four from Target Area 4; and three from Target Area 5. No sewer corridor samples were required by the Work Plan for Storm, Industrial, and Sanitary Sewer Sampling (IT, November 1994). A summary of results and our recommendations for each target area are presented below. Proposed sample numbers, types, and analyses for additional Phase 2C samples (Phase 2C Part II) are summarized in Table 215-4 and are shown on Figure 215-5.

Parcel 215 Target Area 1 (Marginal Wharf)

Target Area 1 is within the Oakland Estuary and has been adequately characterized in the IR Site 20 investigation. No additional sampling is recommended for Target Area 1.

Parcel 215 Target Area 2 (Dock Staging Area)

Target Area 2 includes 50,000 square feet of open space near the marginal wharf. This area may have been impacted by materials staging activities, equipment preparation and equipment washdown. Also, a sump was once present in the eastern portion of this target area; PCBs were detected in the sump area in 1985. Surface and subsurface soil samples from Target Area 2 were analyzed for TPH, CLP metals, and CLP Pesticide/PCBs. Subsurface soil samples were also analyzed for CLP VOCs. Figure 215-1 shows the sample locations.

Three surface and three subsurface soil samples were collected from Parcel 215 Target Area 2. Benzo(a)pyrene was the only chemical detected above the PRGs in the surface samples. A greater number of chemicals were detected in the subsurface samples. Those chemical detections exceeding PRGs include:

- Chromium, lead, and nickel detected in the western and centrally located subsurface samples. Arsenic was detected in all six surface and subsurface soils above its PRG but below its background level
- Aldrin, detected in the western subsurface sample
- Aroclor-1260, detected in the western subsurface sample

- Several PNAs, including benzo(a)anthracene, BAP, and benzo(b)fluoranthene, detected in the western and centrally located subsurface samples; BAP was also detected in the western and eastern surface samples.

TPH as motor oil was detected in five out of the six soil samples at concentrations ranging from 79 mg/kg to 260 mg/kg; TPH as gasoline was detected below its RBSL in one sample. TPH as diesel was not detected.

No VOCs were detected in Target Area 2 soils.

Different analytes were detected above PRGs in the water samples collected from Parcel 215 Target Area 2. These include:

- Antimony and lead, detected in the water from both locations sampled
- Arsenic was detected in both water samples above its PRG but below its background level
- Aldrin, 4,4'-DDT, and heptachlor epoxide, detected in the eastern water sample
- Aroclor-1260, which was detected in the water sample from the eastern location.

TPH as motor oil was detected at 1.6 ug/l in the western water sample; TPH as gasoline was detected in both water samples at low concentrations below its RBSL. TPH as gasoline was also detected in both trip blank samples at similar concentrations. It is possible that the TPH as gasoline detects are not representative of actual groundwater conditions.

Further sampling is recommended to better define the distribution of metals in soil and groundwater, the distribution of PNAs and pesticide/PCB in surface and subsurface soils, and the distribution of pesticide/PCB in groundwater in the vicinity of sample 215-0008. Three surface soil samples, four subsurface soil samples and six groundwater samples will be collected in and around Target Area 2 (Phase 2C Part I) sample locations. Samples 215-0024 through 215-0036 area investigate Target Area 2 even though some samples (215-0027 and 215-0036) are physically located on Target Areas 4 and 3. Samples 215-0033 through 215-0035, located east of the parcel boundary, also address Target Area 2.

Sampling in Target Area 2 is extended the west along the waterfront by the collection of subsurface sample 215-0028. Surface and subsurface soil samples will be taken at ground surface and 3.5 feet bgs, respectively; the samples should be analyzed for CLP Pesticides/PCBs, CLP SVOC and CLP metals. Groundwater samples will be taken with a Hydropunch device at 8.0 to 12.0 feet bgs. Groundwater samples should be analyzed for CLP Pesticides/PCBs and CLP Metals. Groundwater samples 215-0027 and 215-0036, to be collected within the boundaries of Target Areas 4 and 3 (respectively) address compounds detected in Target Area 2.

The proposed sample numbers and locations are indicated in Figure 5; the proposed analyses are given in Table 215-4.

Parcel 215 Target Area 3 (Former Warehouse No. 3 - Building 63)

Target Area 3 includes about one quarter of the footprint of a former 40,000 square foot warehouse. Soils and groundwater may have been impacted by materials storage and equipment handling. Surface and subsurface soil samples were analyzed for TPH, CLP Metals, CLP SVOCs and CLP Pesticide/PCBs. Subsurface soil samples were also analyzed for CLP VOCs. Sample locations are shown in Figure 215-1.

One surface, one subsurface, and a duplicate subsurface sample were collected from Parcel 215 Target Area 3. Benzo(a)anthracene, BAP, benzo(b)fluoranthene and dibenzo(a,h)anthracene were detected above PRGs in both the surface and subsurface samples. The subsurface sample results were generally much lower than the surface sample results for the same analytes. Many of the subsurface sample results were less than 2 times the corresponding PRG value.

Other constituents detected in Target Area 3 soils are as follows; motor oil was detected in surface and subsurface soil samples at concentrations ranging from 79 mg/kg to 450 mg/kg; eleven pesticides were detected at low concentrations. Metals were detected at concentrations below PRGs except for arsenic, which was detected above its PRG but below background levels. No other constituents were detected.

IT recommends the collection of surface and subsurface soil samples, at ground surface and 3.0 - 3.5 feet bgs respectively, directly east and south of the Phase 2C Part I sample location in order to better define the extent of PNAs. The samples should be analyzed for CLP SVOCs. Proposed

sample locations are shown in Figure 5; proposed analyses are given in Table 215-4. Groundwater sample 215-0036, to be collected within the boundaries of Target Area 3, addresses compounds detected in Target Area 2.

Parcel 215 Target Area 4 (Equipment Storage Area)

Target Area 4 is approximately 29,000 square feet, and was previously used as a storage area. Equipment and materials storage in this area may have impacted surface and subsurface soils. Surface and subsurface soil samples were analyzed for TPH, CLP Metals, CLP SVOCs and CLP Pesticide/PCBs. Subsurface soil samples were also analyzed for CLP VOCs. Sample locations are shown in Figure 215-1.

Two surface and two subsurface samples were collected from Parcel 215 Target Area 4. Benzo(a)pyrene was the only PNA exceeding its PRG in the surface samples. Phenanthrene, a PNA which does not have a PRG, was also detected in the eastern surface sample. The level of benzo(a)pyrene at the surface appears to increase from below PRG values near the center of the parcel to approximately 3 times the PRG towards the eastern boundary (as indicated by the eastern Target Area 4 surface sample and the Target Area 3 surface sample). The level of phenanthrene also appears to increase towards the eastern boundary. No PNAs were detected above PRGs in the subsurface samples.

Other constituents detected in Target Area 4 soils are as follows; motor oil was detected in surface and subsurface soil samples at concentrations ranging from 83 mg/kg to 350 mg/kg; seven pesticides were detected at low concentrations. Metals were detected at low concentrations below PRGs except for arsenic which was detected above its PRG but below background levels. No other constituents were detected.

IT recommends the collection of one surface soil, one subsurface soil and one groundwater sample, at ground surface, 3.0 - 3.5 feet bgs, and 8.0 - 12.0 feet bgs respectively. These samples should be located directly south of Phase 2C Part I samples 215-0012 and 215-0013. These samples are proposed to better define the extent of PNAs in soil, and also to define a southern extent of any metals and/or pesticide/PCBs in groundwater. Target Area 4 groundwater was not sampled in Phase 2C Part I, and therefore it is not currently known how far south metals and pesticide/ PCBs in groundwater extend. Sample 215-0043, in conjunction with previous

groundwater samples taken south of Phase 2C Part I samples 215-0023 and 215-0008, will help determine the extent of metals and pesticide/PCBs in Parcel 215 groundwater. Groundwater sample 215-0027, being collected within the boundaries of Target Area 4, addresses compounds detected in Target Area 2.

Soil samples should be collected at ground surface and 3.0 - 3.5 feet bgs respectively, and analyzed for CLP SVOC. The groundwater sample should be collected with at 8.0 - 12.0 feet bgs with a Hydropunch device and analyzed for CLP Pesticides/PCBs and CLP Metals. Proposed sample locations are shown in Figure 215-7; proposed analyses are given in Table 215-4.

Parcel 215 Target Area 5 (Impoundment)

Target Area 5 includes a former impoundment area identified from historical air photos. The impoundment held unidentified liquids, suspected to be surface water runoff or bilge water or other ship waste. Soil and groundwater samples were analyzed for TPH, CLP Metals, CLP SVOCs and CLP Pesticide/PCBs. Subsurface soil and groundwater samples were also analyzed for CLP VOCs. Sample locations are shown in Figure 215-1.

One surface soil sample and one subsurface soil sample were collected from Parcel 215 Target Area 5. Lead and vanadium were detected above PRGs in the surface but not in the subsurface sample. No other metals were detected above PRGs in the surface or subsurface samples with the exception of arsenic. Arsenic was detected above its PRG but below its background level. TPH as motor oil was detected at concentrations of 140 mg/kg in the surface soil sample, and 870 mg/kg in the subsurface soil sample. Diesel was also detected in the subsurface soil sample below its RBSL. No VOCs, pesticides, or PCBs were detected above PRGs in the soil samples from Target Area 5, but results for SVOCs are inconclusive because of elevated detection limits for the sample analysis.

One water sample was collected from Parcel 215 Target Area 5. The analytes detected above PRGs in the water sample differed from those in the soil. Arsenic, manganese, and thallium were detected in the water samples at levels exceeding the PRGs; the arsenic concentration was below background levels. No other analytes were detected above PRGs in the water.

TPH as motor oil was detected in the groundwater sample at a concentration of 1.5 mg/l. No other TPH constituents were detected in groundwater.

IT recommends further sampling due to the inconclusive SVOC data from Target Area 5, and to better define the distribution of metals in soil and groundwater. Four surface soil, subsurface soil and groundwater samples should be collected in Target Area 5 as shown in Figure 215-6 in order to define the extent of constituents associated with the former impoundment, and to investigate the possible presence of SVOCs. Samples should be collected at ground surface, 3.0 - 3.5 ft bgs and 8.0 - 12.0 feet bgs respectively. All samples should be analyzed for CLP Pesticides/PCBs, CLP SVOC and CLP Metals as given in Table 215-4.

7.0 References

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Table 215-1
Phase 2C Part I Sample Collection Summary
Parcel 215

Project No. 773526

Sample #	Type	Matrix	Purpose	Sample Depth (ft)**	Analytical Parameters	Lab Type*
215-0001	Surface Soil	Soil	Target Area 2	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0002	Subsurface Soil	Soil	Target Area 2	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0023	Hydropunch	Water	Target Area 2	8.0 - 12.0	TPH-g, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0003	Surface Soil	Soil	Target Area 2	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0004	Subsurface Soil	Soil	Target Area 2	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0006	Surface Soil	Soil	Target Area 2	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0007	Subsurface Soil	Soil	Target Area 2	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0008	Hydropunch	Water	Target Area 2	8.0 - 8.5	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0009	Surface Soil	Soil	Target Area 3	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0010	Subsurface Soil	Soil	Target Area 3	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0012	Surface Soil	Soil	Target Area 4	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0013	Subsurface Soil	Soil	Target Area 4	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0014	Surface Soil	Soil	Target Area 4	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0015	Subsurface Soil	Soil	Target Area 4	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F
215-0016	Surface Soil	Soil	Target Area 5	0.0 - 1.0	TPH, CLP metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0017	Subsurface Soil	Soil	Target Area 5	3.0 - 4.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOC	F

**Table 215-1
Phase 2C Part I Sample Collection Summary
Parcel 215**

Project No. 773526

Sample #	Type	Matrix	Purpose	Sample Depth (ft)**	Analytical Parameters	Lab Type*
215-0018	Hydropunch	Water	Target Area 5	8.0 - 8.5	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOCs	F
215-0021	Surface Soil	Soil	Field Duplicate (1)	0.0 - 1.0	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs	F
215-0024	Hydropunch	Water	Equipment Rinsate	na	TPH, CLP Metals, CLP Pesticide/PCBs, CLP SVOCs, CLP VOCs	F
215-0025	Trip Blank	Water	Trip Blank	na	TPH, CLP VOCs	F

Notes:

*Lab Type: M = Mobile, S = Screening, F = Fixed-base.

(1) Field Duplicate of sample 215-0009

** Sample depth indicates depth below subgrade

Hydropunch taken approximately 3 ft below water table.

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0001	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 19100	MG/KG	P	15.3
			ANTIMONY	TRG	1.7	MG/KG	P	1.4
			ARSENIC	TRG	8.7	MG/KG	PN	2.4
			BARIUM	TRG	499	MG/KG	PN	47.2
			BERYLLIUM	TRG	0.56	MG/KG	BP	1.2
			CADMIUM	TRG	0.39	MG/KG	BP	1.2
			CALCIUM	TRG	5140	MG/KG	P	1180
			CHROMIUM	TRG	112	MG/KG	PN	2.4
			COBALT	TRG	19.4	MG/KG	P	11.8
			COPPER	TRG	74.1	MG/KG	P	5.9
			IRON	TRG	41600	MG/KG	P	23.6
			LEAD	TRG	44.1	MG/KG	PN	0.71
			MAGNESIUM	TRG	10900	MG/KG	P	1180
			MANGANESE	TRG	1860	MG/KG	P	3.5
			MERCURY	TRG	0.3	MG/KG	CV	0.12
			MOLYBDENUM	TRG	0.26	MG/KG	BP	1.5
			NICKEL	TRG	126	MG/KG	PN	9.4
			POTASSIUM	TRG	2530	MG/KG	PE	1180
			SELENIUM	TRG	1.5	MG/KG	P	1.2
			THALLIUM	TRG	1.9	MG/KG	P	0.59
			VANADIUM	TRG	63.9	MG/KG	P	11.8
			ZINC	TRG	142	MG/KG	P	4.7
215-0002	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 7170	MG/KG	P	34
			ANTIMONY	TRG	13.7	MG/KG	P	3.25
			ARSENIC	TRG	17.4	MG/KG	PN	5.25
			BARIUM	TRG	275	MG/KG	PN	105
			CADMIUM	TRG	0.32	MG/KG	BP	2.5
			CALCIUM	TRG	7590	MG/KG	P	2625
			CHROMIUM	TRG	792	MG/KG	PN	5.25
			COBALT	TRG	28.1	MG/KG	P	26.3
			COPPER	TRG	533	MG/KG	P	13
			IRON	TRG	70900	MG/KG	P	52.5
			LEAD	TRG	491	MG/KG	PN	1.58
			MAGNESIUM	TRG	20700	MG/KG	P	2625
			MANGANESE	TRG	738	MG/KG	P	7.75
			MERCURY	TRG	2.2	MG/KG	CV	0.1
			MOLYBDENUM	TRG	3.9	MG/KG	P	3.5
			NICKEL	TRG	899	MG/KG	PN	21
			POTASSIUM	TRG	673	MG/KG	BPE	1050
			SODIUM	TRG	219	MG/KG	BP	1050
			THALLIUM	TRG	0.57	MG/KG	P	0.52
			VANADIUM	TRG	283	MG/KG	P	10.5
			ZINC	TRG	838	MG/KG	P	4.2
215-0003	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 11400	MG/KG	P	14.7
			ANTIMONY	TRG	0.54	MG/KG	BP	1.4
			ARSENIC	TRG	5.4	MG/KG	PN	2.3

B: Value greater than instrument detect limit, but less than contract required quantitation limit.

E: Exceeded instrument calibration.

J: Estimated value.

Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

form: detect

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0003	CLP METALS	CLP METALS	BARIUM	REG	TRG 283	MG/KG	PN	45.1
			BERYLLIUM		TRG 0.13	MG/KG	BP	1.1
			CADMIUM		TRG 0.21	MG/KG	BP	1.1
			CALCIUM		TRG 2810	MG/KG	P	1130
			CHROMIUM		TRG 47	MG/KG	PN	2.3
			COBALT		TRG 11.3	MG/KG	P	11.3
			COPPER		TRG 19.4	MG/KG	P	5.6
			IRON		TRG 18600	MG/KG	P	22.6
			LEAD		TRG 12.1	MG/KG	PN	0.68
			MAGNESIUM		TRG 5220	MG/KG	P	1130
			MANGANESE		TRG 840	MG/KG	P	3.4
			MOLYBDENUM		TRG 0.17	MG/KG	BP	1.5
			NICKEL		TRG 59.7	MG/KG	PN	9
			POTASSIUM		TRG 1280	MG/KG	PE	1130
			SELENIUM		TRG 0.76	MG/KG	BP	1.1
			VANADIUM		TRG 32.5	MG/KG	P	11.3
			ZINC		TRG 45.9	MG/KG	P	4.5
215-0004	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 5190	MG/KG	P	14.7
			ANTIMONY		TRG 10.1	MG/KG	P	1.4
			ARSENIC		TRG 4.3	MG/KG	PN	2.3
			BARIUM		TRG 103	MG/KG	PN	45.3
			BERYLLIUM		TRG 0.074	MG/KG	BP	1.1
			CADMIUM		TRG 0.27	MG/KG	BP	1.1
			CALCIUM		TRG 6480	MG/KG	P	1130
			CHROMIUM		TRG 626	MG/KG	PN	2.3
			COBALT		TRG 15.8	MG/KG	P	11.3
			COPPER		TRG 350	MG/KG	P	5.7
			IRON		TRG 24900	MG/KG	P	22.7
			LEAD		TRG 241	MG/KG	PN	0.68
			MAGNESIUM		TRG 25300	MG/KG	P	1130
			MANGANESE		TRG 403	MG/KG	P	3.4
			MERCURY		TRG 0.21	MG/KG	CV	0.11
			MOLYBDENUM		TRG 0.88	MG/KG	BP	1.5
			NICKEL		TRG 394	MG/KG	PN	9.1
			POTASSIUM		TRG 477	MG/KG	BPE	1130
			SODIUM		TRG 288	MG/KG	BP	1130
			THALLIUM		TRG 0.5	MG/KG	BP	0.57
			VANADIUM		TRG 29.9	MG/KG	P	11.3
			ZINC		TRG 503	MG/KG	P	4.5
215-0006	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 13100	MG/KG	P	15.6
			ANTIMONY		TRG 1.7	MG/KG	P	1.4
			ARSENIC		TRG 7.2	MG/KG	PN	2.4
			BARIUM		TRG 373	MG/KG	PN	48.1
			BERYLLIUM		TRG 0.4	MG/KG	BP	1.2
			CADMIUM		TRG 0.38	MG/KG	BP	1.2
			CALCIUM		TRG 7400	MG/KG	P	1200

B: Value greater than instrument detect limit, but less than contract required quantitation limit.

E: Exceeded instrument calibration.

J: Estimated value.

Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0006	CLP METALS	CLP METALS	CHROMIUM	REG	TRG 51.9	MG/KG	PN	2.4
			COBALT		TRG 15.6	MG/KG	P	12
			COPPER		TRG 41.5	MG/KG	P	6
			IRON		TRG 25500	MG/KG	P	24.1
			LEAD		TRG 70	MG/KG	PN	0.72
			MAGNESIUM		TRG 7540	MG/KG	P	1200
			MANGANESE		TRG 1310	MG/KG	P	3.6
			MERCURY		TRG 0.27	MG/KG	CV	0.12
			NICKEL		TRG 88	MG/KG	PN	9.6
			POTASSIUM		TRG 1580	MG/KG	PE	1200
			SELENIUM		TRG 0.85	MG/KG	BP	1.2
			SODIUM		TRG 895	MG/KG	BP	1200
			THALLIUM		TRG 1.5	MG/KG	P	0.6
			VANADIUM		TRG 31.9	MG/KG	P	12
			ZINC		TRG 134	MG/KG	P	4.8
215-0007	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 10100	MG/KG	P	14.7
			ANTIMONY		TRG 0.78	MG/KG	BP	1.4
			ARSENIC		TRG 8.2	MG/KG	PN	2.3
			BARIUM		TRG 210	MG/KG	PN	45.1
			BERYLLIUM		TRG 0.24	MG/KG	BP	1.1
			CADMİUM		TRG 0.38	MG/KG	BP	1.1
			CALCIUM		TRG 5370	MG/KG	P	1130
			CHROMIUM		TRG 45.6	MG/KG	PN	2.3
			COBALT		TRG 12.4	MG/KG	P	11.3
			COPPER		TRG 37	MG/KG	P	5.6
			IRON		TRG 21000	MG/KG	P	22.5
			LEAD		TRG 72.4	MG/KG	PN	0.68
			MAGNESIUM		TRG 5640	MG/KG	P	1130
			MANGANESE		TRG 630	MG/KG	P	3.4
			MERCURY		TRG 0.2	MG/KG	CV	0.11
			NICKEL		TRG 60.2	MG/KG	PN	9
			POTASSIUM		TRG 985	MG/KG	BPE	1130
			SODIUM		TRG 986	MG/KG	BP	1130
			THALLIUM		TRG 0.4	MG/KG	BP	0.56
			VANADIUM		TRG 35.2	MG/KG	P	11.3
			ZINC		TRG 532	MG/KG	P	4.5
215-0008	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 154	UG/L	P	50
			ANTIMONY		TRG 22.9	UG/L	P	6
			ARSENIC		TRG 80.4	UG/L	P	10
			BARIUM		TRG 98.7	UG/L	BP	200
			CADMİUM		TRG 1.6	UG/L	BP	5
			CALCIUM		TRG 137000	UG/L	P	5000
			CHROMIUM		TRG 57	UG/L	P	10
			COBALT		TRG 16.4	UG/L	BP	50
			COPPER		TRG 406	UG/L	P	25
			IRON		TRG 513	UG/L	P	100

B: Value greater than instrument detect limit, but less than contract required quantitation limit.

E: Exceeded instrument calibration.

J: Estimated value.

Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

form: detect

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0008	CLP METALS	CLP METALS	LEAD	REG	TRG 19.4	UG/L	P	3
			MAGNESIUM	TRG	636000	UG/L	P	5000
			MANGANESE	TRG	1510	UG/L	P	15
			MERCURY	TRG	0.46	UG/L	CV	0.2
			MOLYBDENUM	TRG	68	UG/L	P	5
			NICKEL	TRG	270	UG/L	P	40
			POTASSIUM	TRG	164000	UG/L	PE	5000
			SELENIUM	TRG	5.9	UG/L	P	5
			SODIUM	TRG	4320000	UG/L	P	5000
			THALLIUM	TRG	2	UG/L	P	2
			VANADIUM	TRG	120	UG/L	P	50
			ZINC	TRG	237	UG/L	P	20
215-0009	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 10600	MG/KG	P	15
			ANTIMONY	TRG	0.83	MG/KG	BP	1.4
			ARSENIC	TRG	8.3	MG/KG	PN	2.3
			BARIUM	TRG	193	MG/KG	PN	46.1
			BERYLLIUM	TRG	0.34	MG/KG	BP	1.2
			CADMIUM	TRG	0.32	MG/KG	BP	1.2
			CALCIUM	TRG	5150	MG/KG	P	1150
			CHROMIUM	TRG	51.6	MG/KG	PN	2.3
			COBALT	TRG	13.2	MG/KG	P	11.5
			COPPER	TRG	29.7	MG/KG	P	5.8
			IRON	TRG	20500	MG/KG	P	23
			LEAD	TRG	53.4	MG/KG	PN	0.69
			MAGNESIUM	TRG	5700	MG/KG	P	1150
			MANGANESE	TRG	529	MG/KG	P	3.5
			MERCURY	TRG	0.17	MG/KG	CV	0.12
			NICKEL	TRG	62.3	MG/KG	PN	9.2
			POTASSIUM	TRG	1280	MG/KG	PE	1150
			SODIUM	TRG	304	MG/KG	BP	1150
			THALLIUM	TRG	0.41	MG/KG	BP	0.58
			VANADIUM	TRG	34.8	MG/KG	P	11.5
			ZINC	TRG	100	MG/KG	P	4.6
215-0010	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 8930	MG/KG	P	14.6
			ANTIMONY	TRG	0.55	MG/KG	BP	1.3
			ARSENIC	TRG	6.2	MG/KG	PN	2.2
			BARIUM	TRG	115	MG/KG	PN	44.8
			BERYLLIUM	TRG	0.2	MG/KG	BP	1.1
			CADMIUM	TRG	0.1	MG/KG	BP	1.1
			CALCIUM	TRG	4150	MG/KG	P	1120
			CHROMIUM	TRG	45.7	MG/KG	PN	2.2
			COBALT	TRG	6.5	MG/KG	BP	11.2
			COPPER	TRG	19.3	MG/KG	P	5.6
			IRON	TRG	16600	MG/KG	P	22.4
			LEAD	TRG	67.1	MG/KG	PN	0.67
			MAGNESIUM	TRG	3380	MG/KG	P	1120

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Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0010	CLP METALS	CLP METALS	MANGANESE	REG	TRG 148	MG/KG	P	3.4
			MERCURY	REG	TRG 0.13	MG/KG	CV	0.11
			MOLYBDENUM	REG	TRG 0.41	MG/KG	BP	1.5
			NICKEL	REG	TRG 36.7	MG/KG	PN	9
			POTASSIUM	REG	TRG 916	MG/KG	BPE	1120
			SODIUM	REG	TRG 425	MG/KG	BP	1120
			VANADIUM	REG	TRG 34.2	MG/KG	P	11.2
			ZINC	REG	TRG 51.9	MG/KG	P	4.5
215-0012	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 14900	MG/KG	P	15.5
			ANTIMONY	REG	TRG 0.61	MG/KG	BP	1.4
			ARSENIC	REG	TRG 8	MG/KG	PN	2.4
			BARIUM	REG	TRG 107	MG/KG	PN	47.7
			CADMIUM	REG	TRG 0.12	MG/KG	BP	1.2
			CALCIUM	REG	TRG 11300	MG/KG	P	1190
			CHROMIUM	REG	TRG 60.7	MG/KG	PN	2.4
			COBALT	REG	TRG 13.3	MG/KG	P	11.9
			COPPER	REG	TRG 44.7	MG/KG	P	6
			IRON	REG	TRG 29700	MG/KG	P	23.8
			LEAD	REG	TRG 85.9	MG/KG	PN	0.72
			MAGNESIUM	REG	TRG 8940	MG/KG	P	1190
			MANGANESE	REG	TRG 332	MG/KG	P	3.6
			MERCURY	REG	TRG 0.43	MG/KG	CV	0.12
			NICKEL	REG	TRG 65.8	MG/KG	PN	9.5
			POTASSIUM	REG	TRG 1670	MG/KG	PE	1190
			SELENIUM	REG	TRG 0.75	MG/KG	BP	1.2
			SODIUM	REG	TRG 1020	MG/KG	BP	1190
			VANADIUM	REG	TRG 51.3	MG/KG	P	11.9
			ZINC	REG	TRG 132	MG/KG	P	4.8
215-0013	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 12200	MG/KG	P	13.5
			ANTIMONY	REG	TRG 0.5	MG/KG	BP	1.2
			ARSENIC	REG	TRG 6.8	MG/KG	PN	2.1
			BARIUM	REG	TRG 263	MG/KG	PN	41.6
			BERYLLIUM	REG	TRG 0.27	MG/KG	BP	1
			CADMIUM	REG	TRG 0.32	MG/KG	BP	1
			CALCIUM	REG	TRG 4950	MG/KG	P	1040
			CHROMIUM	REG	TRG 45	MG/KG	PN	2.1
			COBALT	REG	TRG 15.1	MG/KG	P	10.4
			COPPER	REG	TRG 32.9	MG/KG	P	5.2
			IRON	REG	TRG 22800	MG/KG	P	20.8
			LEAD	REG	TRG 47.8	MG/KG	PN	0.62
			MAGNESIUM	REG	TRG 7180	MG/KG	P	1040
			MANGANESE	REG	TRG 745	MG/KG	P	3.1
			MERCURY	REG	TRG 0.17	MG/KG	CV	0.1
			NICKEL	REG	TRG 64.7	MG/KG	PN	8.3
			POTASSIUM	REG	TRG 1660	MG/KG	PE	1040
			SELENIUM	REG	TRG 0.95	MG/KG	BP	1

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				Type	Type	Result		
215-0013	CLP METALS	CLP METALS	SODIUM	REG	TRG	1160	MG/KG	P 1040
			THALLIUM		TRG	0.38	MG/KG	BP 0.52
			VANADIUM		TRG	37.4	MG/KG	P 10.4
			ZINC		TRG	87	MG/KG	P 4.2
215-0014	CLP METALS	CLP METALS	ALUMINUM	REG	TRG	12800	MG/KG	P 15.1
			ANTIMONY		TRG	1.3	MG/KG	BP 1.4
			ARSENIC		TRG	7.5	MG/KG	PN 2.3
			BARIUM		TRG	205	MG/KG	PN 46.6
			BERYLLIUM		TRG	0.43	MG/KG	BP 1.2
			CADMIUM		TRG	0.28	MG/KG	BP 1.2
			CALCIUM		TRG	6710	MG/KG	P 1160
			CHROMIUM		TRG	87.2	MG/KG	PN 2.3
			COBALT		TRG	13.9	MG/KG	P 11.6
			COPPER		TRG	55.9	MG/KG	P 5.8
			IRON		TRG	26500	MG/KG	P 23.3
			LEAD		TRG	83.3	MG/KG	PN 0.7
			MAGNESIUM		TRG	8010	MG/KG	P 1160
			MANGANESE		TRG	609	MG/KG	P 3.5
			MERCURY		TRG	0.18	MG/KG	CV 0.12
			MOLYBDENUM		TRG	0.19	MG/KG	BP 1.5
			NICKEL		TRG	95.2	MG/KG	PN 9.3
			POTASSIUM		TRG	1200	MG/KG	PE 1160
			SELENIUM		TRG	1.3	MG/KG	P 1.2
			SODIUM		TRG	253	MG/KG	BP 1160
			THALLIUM		TRG	0.41	MG/KG	BP 0.58
			VANADIUM		TRG	43.9	MG/KG	P 11.6
			ZINC		TRG	116	MG/KG	P 4.7
215-0015	CLP METALS	CLP METALS	ALUMINUM	REG	TRG	8620	MG/KG	P 14.7
			ANTIMONY		TRG	1.2	MG/KG	BP 1.4
			ARSENIC		TRG	4.4	MG/KG	PN 2.3
			BARIUM		TRG	106	MG/KG	PN 45.1
			BERYLLIUM		TRG	0.13	MG/KG	BP 1.1
			CALCIUM		TRG	4590	MG/KG	P 1130
			CHROMIUM		TRG	85.4	MG/KG	PN 2.3
			COBALT		TRG	6.2	MG/KG	BP 11.3
			COPPER		TRG	35.6	MG/KG	P 5.6
			IRON		TRG	16200	MG/KG	P 22.6
			LEAD		TRG	45	MG/KG	PN 0.68
			MAGNESIUM		TRG	4830	MG/KG	P 1130
			MANGANESE		TRG	121	MG/KG	P 3.4
			MERCURY		TRG	0.076	MG/KG	BCV 0.11
			MOLYBDENUM		TRG	0.42	MG/KG	BP 1.5
			NICKEL		TRG	44.2	MG/KG	PN 9
			POTASSIUM		TRG	897	MG/KG	BPE 1130
			SODIUM		TRG	119	MG/KG	BP 1130
			VANADIUM		TRG	32.8	MG/KG	P 11.3

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				Type	Type	Result		
215-0015	CLP METALS	CLP METALS	ZINC	REG	TRG	56.1	MG/KG	P 4.5
215-0016	CLP METALS	CLP METALS	ALUMINUM	REG	TRG	9520	MG/KG	P 13.7
			ARSENIC		TRG	9.8	MG/KG	PN 2.1
			BARIUM		TRG	70.7	MG/KG	PN 42.2
			CADMIUM		TRG	0.25	MG/KG	BP 1.1
			CALCIUM		TRG	18300	MG/KG	P 1060
			CHROMIUM		TRG	43.4	MG/KG	PN 2.1
			COBALT		TRG	9.7	MG/KG	BP 10.6
			COPPER		TRG	117	MG/KG	P 5.3
			IRON		TRG	22500	MG/KG	P 21.1
			LEAD		TRG	200	MG/KG	PN 0.63
			MAGNESIUM		TRG	5120	MG/KG	P 1060
			MANGANESE		TRG	290	MG/KG	P 3.2
			MERCURY		TRG	1.5	MG/KG	CV 0.11
			MOLYBDENUM		TRG	0.94	MG/KG	BP 1.4
			NICKEL		TRG	66.3	MG/KG	PN 8.4
			POTASSIUM		TRG	871	MG/KG	BPE 1060
			SODIUM		TRG	1370	MG/KG	P 1060
			VANADIUM		TRG	561	MG/KG	P 10.6
			ZINC		TRG	126	MG/KG	P 4.2
215-0017	CLP METALS	CLP METALS	ALUMINUM	REG	TRG	9900	MG/KG	P 13.9
			ARSENIC		TRG	3.2	MG/KG	PN 2.1
			BARIUM		TRG	77.4	MG/KG	PN 42.8
			CADMIUM		TRG	0.1	MG/KG	BP 1.1
			CALCIUM		TRG	57900	MG/KG	P 1070
			CHROMIUM		TRG	27.1	MG/KG	PN 2.1
			COBALT		TRG	6.1	MG/KG	BP 10.7
			COPPER		TRG	17.4	MG/KG	P 5.4
			IRON		TRG	12700	MG/KG	P 21.4
			LEAD		TRG	10.5	MG/KG	PN 0.64
			MAGNESIUM		TRG	5860	MG/KG	P 1070
			MANGANESE		TRG	310	MG/KG	P 3.2
			MOLYBDENUM		TRG	0.2	MG/KG	BP 1.4
			NICKEL		TRG	29.6	MG/KG	PN 8.6
			POTASSIUM		TRG	661	MG/KG	BPE 1070
			SELENIUM		TRG	0.59	MG/KG	BP 1.1
			SODIUM		TRG	73.4	MG/KG	BP 1070
			VANADIUM		TRG	23	MG/KG	P 10.7
			ZINC		TRG	51.4	MG/KG	P 4.3
215-0018	CLP METALS	CLP METALS	ALUMINUM	REG	TRG	158	UG/L	P 50
			ANTIMONY		TRG	4.2	UG/L	BP 6
			ARSENIC		TRG	28.8	UG/L	P 10
			BARIUM		TRG	843	UG/L	P 200
			CADMIUM		TRG	0.36	UG/L	BP 5
			CALCIUM		TRG	485000	UG/L	P 5000

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215-0018	CLP METALS	CLP METALS	CHROMIUM	REG	TRG 4	UG/L	BP	10
			COBALT		TRG 2.9	UG/L	BP	50
			COPPER		TRG 16.4	UG/L	BP	25
			IRON		TRG 1250	UG/L	P	100
			LEAD		TRG 1.7	UG/L	BP	3
			MAGNESIUM		TRG 778000	UG/L	P	250000
			MANGANESE		TRG 2260	UG/L	P	15
			MOLYBDENUM		TRG 34.6	UG/L	P	5
			NICKEL		TRG 8.5	UG/L	BP	40
			POTASSIUM		TRG 209000	UG/L	PE	250000
			SELENIUM		TRG 5.5	UG/L	P	5
			SODIUM		TRG 6410000	UG/L	P	250000
			THALLIUM		TRG 3.2	UG/L	P	2
			VANADIUM		TRG 9.8	UG/L	BP	50
			ZINC		TRG 6.3	UG/L	BP	20
215-0021	CLP METALS	CLP METALS	ALUMINUM	FD	TRG 16700	MG/KG	P	15.1
			ANTIMONY		TRG 1.1	MG/KG	BP	1.4
			ARSENIC		TRG 8.3	MG/KG	PN	2.3
			BARIUM		TRG 517	MG/KG	PN	46.5
			BERYLLIUM		TRG 0.49	MG/KG	BP	1.2
			CADMIUM		TRG 0.61	MG/KG	BP	1.2
			CALCIUM		TRG 6510	MG/KG	P	1160
			CHROMIUM		TRG 56.2	MG/KG	PN	2.3
			COBALT		TRG 17.8	MG/KG	P	11.6
			COPPER		TRG 51.2	MG/KG	P	5.8
			IRON		TRG 27700	MG/KG	P	23.2
			LEAD		TRG 42.9	MG/KG	PN	0.7
			MAGNESIUM		TRG 9510	MG/KG	P	1160
			MANGANESE		TRG 1700	MG/KG	P	3.5
			MERCURY		TRG 0.12	MG/KG	BCV	0.12
			NICKEL		TRG 113	MG/KG	PN	9.3
			POTASSIUM		TRG 2030	MG/KG	PE	1160
			SELENIUM		TRG 0.99	MG/KG	BP	1.2
			SODIUM		TRG 477	MG/KG	BP	1160
			THALLIUM		TRG 1.7	MG/KG	P	0.58
			VANADIUM		TRG 39.4	MG/KG	P	11.6
			ZINC		TRG 111	MG/KG	P	4.6
215-0023	CLP METALS	CLP METALS	ALUMINUM	REG	TRG 35.5	UG/L	BP	50
			ANTIMONY		TRG 40	UG/L	P	6
			ARSENIC		TRG 15.9	UG/L	P	10
			BARIUM		TRG 186	UG/L	BP	200
			CALCIUM		TRG 252000	UG/L	P	5000
			CHROMIUM		TRG 5.6	UG/L	BP	10
			COBALT		TRG 4.8	UG/L	BP	50
			COPPER		TRG 28.7	UG/L	P	25
			IRON		TRG 40.6	UG/L	BP	100

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0023	CLP METALS	CLP METALS	LEAD	REG	TRG 4.2	UG/L	P	3
			MAGNESIUM		TRG 716000	UG/L	P	250000
			MANGANESE		TRG 637	UG/L	P	15
			MOLYBDENUM		TRG 16.1	UG/L	P	5
			NICKEL		TRG 42.3	UG/L	P	40
			POTASSIUM		TRG 264000	UG/L	PE	250000
			SELENIUM		TRG 5.2	UG/L	P	5
			SODIUM		TRG 6280000	UG/L	P	250000
			VANADIUM		TRG 4.7	UG/L	BP	50
			ZINC		TRG 122	UG/L	P	20
215-0024	CLP METALS	CLP METALS	ALUMINUM	ER	TRG 19.1	UG/L	BP	50
			BARIUM		TRG 1	UG/L	BP	200
			CALCIUM		TRG 146	UG/L	BP	5000
			COPPER		TRG 7.4	UG/L	BP	25
			IRON		TRG 15.1	UG/L	BP	100
			MAGNESIUM		TRG 69.4	UG/L	BP	5000
			MANGANESE		TRG 1.3	UG/L	BP	15
			NICKEL		TRG 2.4	UG/L	BP	40
			POTASSIUM		TRG 117	UG/L	BPE	5000
			SILVER		TRG 0.3	UG/L	BP	10
			SODIUM		TRG 2610	UG/L	BP	5000
			ZINC		TRG 18.6	UG/L	BP	20
215-0001	CLP PEST/PCB	CLP PEST/PCB	HEPTACHLOR EPOXIDE	REG	TRG 1.1	UG/KG	J	2
215-0002	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	REG	TRG 37	UG/KG		3.5
			4,4'-DDE		TRG 19	UG/KG		3.5
			4,4'-DDT		TRG 260	UG/KG		3.5
			ALDRIN		TRG 32	UG/KG		1.8
			AROCLOL-1016 (PCB-1016)		TRG 79	UG/KG		35
			AROCLOL-1260 (PCB-1260)		TRG 370	UG/KG		35
			DIELDRIN		TRG 12	UG/KG		3.5
			ENDOSULFAN I		TRG 2.7	UG/KG		1.8
			ENDOSULFAN II		TRG 2.8	UG/KG	J	3.5
			ENDRIN		TRG 2.3	UG/KG	J	3.5
			ENDRIN ALDEHYDE		TRG 23	UG/KG		3.5
			ENDRIN KETONE		TRG 21	UG/KG		3.5
			GAMMA-CHLORDANE		TRG 15	UG/KG		1.8
			HEPTACHLOR		TRG 2.8	UG/KG		1.8
			HEPTACHLOR EPOXIDE		TRG 18	UG/KG		1.8
			METHOXYCHLOR		TRG 65	UG/KG		18
215-0004	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDE	REG	TRG 1.6	UG/KG	J	3.7
			4,4'-DDT		TRG 17	UG/KG		3.7
			AROCLOL-1260 (PCB-1260)		TRG 83	UG/KG		37
			DIELDRIN		TRG 9.2	UG/KG		3.7
			ENDRIN		TRG 9.5	UG/KG		3.7

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0004	CLP PEST/PCB	CLP PEST/PCB	ENDRIN KETONE	REG	TRG 6.0	UG/KG		3.7
			GAMMA-CHLORDANE		TRG 2.1	UG/KG		1.9
			HEPTACHLOR EPOXIDE		TRG 1.3	UG/KG	J	1.9
			METHOXYCHLOR		TRG 15	UG/KG	J	19
215-0006	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDE	REG	TRG 1.4	UG/KG	J	4
			4,4'-DDT		TRG 3.8	UG/KG	J	4
			ALDRIN		TRG 1.4	UG/KG	J	2
			DIELDRIN		TRG 3.5	UG/KG	J	4
			METHOXYCHLOR		TRG 6	UG/KG	J	20
215-0007	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDT	REG	TRG 5.1	UG/KG		3.7
			ALPHA-CHLORDANE		TRG 1.1	UG/KG	J	1.9
			DIELDRIN		TRG 2.7	UG/KG	J	3.7
			ENDRIN		TRG 2.3	UG/KG	J	3.7
			GAMMA-CHLORDANE		TRG 1.9	UG/KG	J	1.9
215-0008	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	REG	TRG 0.06	UG/L	J	0.1
			4,4'-DDE		TRG 0.063	UG/L	J	0.1
			4,4'-DDT		TRG 0.62	UG/L		0.1
			ALDRIN		TRG 0.099	UG/L		0.05
			AROCLOL-1260 (PCB-1260)		TRG 1.0	UG/L		1
			ENDOSULFAN II		TRG 0.024	UG/L	J	0.1
			ENDRIN		TRG 0.22	UG/L		0.1
			ENDRIN KETONE		TRG 0.043	UG/L	J	0.1
			GAMMA-CHLORDANE		TRG 0.046	UG/L	J	0.05
			HEPTACHLOR EPOXIDE		TRG 0.028	UG/L		0.01
215-0009	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	REG	TRG 10	UG/KG		3.8
			4,4'-DDE		TRG 2.6	UG/KG	J	3.8
			4,4'-DDT		TRG 18	UG/KG		3.8
			DIELDRIN		TRG 13	UG/KG		3.8
			ENDRIN		TRG 2.8	UG/KG	J	3.8
			ENDRIN KETONE		TRG 11	UG/KG		3.8
			GAMMA-CHLORDANE		TRG 2	UG/KG	J	2
			HEPTACHLOR EPOXIDE		TRG 5.3	UG/KG		2
			METHOXYCHLOR		TRG 42	UG/KG		20
215-0012	CLP PEST/PCB	CLP PEST/PCB	ALDRIN	REG	TRG 0.6	UG/KG	J	2
			ALPHA-BHC		TRG 0.62	UG/KG	J	2
			DIELDRIN		TRG 2.6	UG/KG	J	3.9
			HEPTACHLOR EPOXIDE		TRG 1.1	UG/KG	J	2
215-0015	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	REG	TRG 4	UG/KG		3.7
			4,4'-DDT		TRG 5	UG/KG		3.7
215-0016	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	REG	TRG 2.1	UG/KG	J	3.5
			4,4'-DDE		TRG 3.4	UG/KG	J	3.5

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215-0016	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDT	REG	TRG 39	UG/KG		3.5
			ALDRIN		TRG 3.6	UG/KG		1.8
			AROCLOR-1260 (PCB-1260)		TRG 160	UG/KG		35
			ENDOSULFAN II		TRG 1.6	UG/KG	J	3.5
			ENDRIN		TRG 28	UG/KG		3.5
			ENDRIN ALDEHYDE		TRG 13	UG/KG		3.5
			ENDRIN KETONE		TRG 6	UG/KG		3.5
			GAMMA-CHLORDANE		TRG 2.4	UG/KG		1.8
			HEPTACHLOR EPOXIDE		TRG 2.4	UG/KG		1.8
215-0017	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	REG	TRG 4.5	UG/KG		3.5
			4,4'-DDT		TRG 5.2	UG/KG		3.5
			ALDRIN		TRG 3.9	UG/KG		1.8
			DIELDRIN		TRG 1.9	UG/KG	J	3.5
			ENDRIN		TRG 4.2	UG/KG		3.5
			GAMMA-CHLORDANE		TRG 1.3	UG/KG	J	1.8
			HEPTACHLOR EPOXIDE		TRG 1.4	UG/KG	J	1.8
			METHOXYCHLOR		TRG 3.7	UG/KG	J	18
215-0021	CLP PEST/PCB	CLP PEST/PCB	4,4'-DDD	FD	TRG 3	UG/KG	J	3.8
			4,4'-DDT		TRG 2.7	UG/KG	J	3.8
			ALDRIN		TRG 1.3	UG/KG	J	2
			ALPHA-BHC		TRG 1.2	UG/KG	J	2
			ENDRIN		TRG 1.9	UG/KG	J	3.8
			HEPTACHLOR EPOXIDE		TRG 2	UG/KG	J	2
			METHOXYCHLOR		TRG 20	UG/KG	J	20
215-0001	CLP SVOC	CLP SVOC	BENZO(A) ANTHRACENE	REG	TRG 68	UG/KG	J	390
			BENZO(A) PYRENE		TRG 68	UG/KG	J	390
			BENZO(B) FLUORANTHENE		TRG 110	UG/KG	J	390
			CHRYSENE		TRG 74	UG/KG	J	390
			DIETHYL PHTHALATE (DEP)		TRG 81	UG/KG	J	390
			FLUORANTHENE		TRG 90	UG/KG	J	390
			PYRENE		TRG 83	UG/KG	J	390
215-0002	CLP SVOC	CLP SVOC	BENZO(A) ANTHRACENE	REG	TRG 1200	UG/KG	J	6900
			BENZO(A) PYRENE		TRG 1200	UG/KG	J	6900
			BENZO(B) FLUORANTHENE		TRG 1800	UG/KG	J	6900
			CHRYSENE		TRG 1100	UG/KG	J	6900
			FLUORANTHENE		TRG 2100	UG/KG	J	6900
			PHENANTHRENE		TRG 940	UG/KG	J	6900
			PYRENE		TRG 1800	UG/KG	J	6900
215-0004	CLP SVOC	CLP SVOC	ACENAPHTHYLENE	REG	TRG 68	UG/KG	J	370
			ANTHRACENE		TRG 79	UG/KG	J	370
			BENZO(A) ANTHRACENE		TRG 510	UG/KG		370
			BENZO(A) PYRENE		TRG 810	UG/KG		370
			BENZO(B) FLUORANTHENE		TRG 830	UG/KG		370

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Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Rslt			Unit of Measure	Detect Qlfr
				Type	Type	Result		
215-0004	CLP SVOC	CLP SVOC	BENZO(G, H, I) PERYLENE	REG	TRG	300	UG/KG	J 370
			BENZO(K) FLUORANTHENE		TRG	270	UG/KG	J 370
			BIS(2-ETHYLHEXYL) PHTHALATE		TRG	95	UG/KG	J 370
			CHRYSENE		TRG	430	UG/KG	370
			DIETHYL PHTHALATE (DEP)		TRG	1100	UG/KG	370
			FLUORANTHENE		TRG	540	UG/KG	370
			INDENO(1,2,3-CD) PYRENE		TRG	310	UG/KG	J 370
			PHENANTHRENE		TRG	200	UG/KG	J 370
			PYRENE		TRG	590	UG/KG	370
215-0006	CLP SVOC	CLP SVOC	BENZO(A) ANTHRACENE	REG	TRG	87	UG/KG	J 400
			BENZO(A) PYRENE		TRG	110	UG/KG	J 400
			BENZO(B) FLUORANTHENE		TRG	110	UG/KG	J 400
			BENZO(K) FLUORANTHENE		TRG	56	UG/KG	J 400
			CHRYSENE		TRG	83	UG/KG	J 400
			FLUORANTHENE		TRG	100	UG/KG	J 400
			PYRENE		TRG	110	UG/KG	J 400
215-0007	CLP SVOC	CLP SVOC	BENZO(B) FLUORANTHENE	REG	TRG	80	UG/KG	J 740
			PYRENE		TRG	82	UG/KG	J 740
215-0009	CLP SVOC	CLP SVOC	ACENAPHTHYLENE	REG	TRG	330	UG/KG	J 760
			ANTHRACENE		TRG	350	UG/KG	J 760
			BENZO(A) ANTHRACENE		TRG	1100	UG/KG	760
			BENZO(A) PYRENE		TRG	1200	UG/KG	760
			BENZO(B) FLUORANTHENE		TRG	1300	UG/KG	760
			BENZO(K) FLUORANTHENE		TRG	440	UG/KG	J 760
			CARBAZOLE		TRG	97	UG/KG	J 760
			CHRYSENE		TRG	890	UG/KG	760
			DI BENZO(A, H) ANTHRACENE		TRG	110	UG/KG	J 760
			FLUORANTHENE		TRG	1700	UG/KG	760
			FLUORENE		TRG	120	UG/KG	J 760
			INDENO(1,2,3-CD) PYRENE		TRG	270	UG/KG	J 760
			PHENANTHRENE		TRG	1100	UG/KG	760
			PYRENE		TRG	1800	UG/KG	760
215-0010	CLP SVOC	CLP SVOC	BENZO(A) ANTHRACENE	REG	TRG	49	UG/KG	J 370
			BENZO(A) PYRENE		TRG	55	UG/KG	J 370
			BENZO(B) FLUORANTHENE		TRG	59	UG/KG	J 370
			CHRYSENE		TRG	52	UG/KG	J 370
			DIETHYL PHTHALATE (DEP)		TRG	62	UG/KG	J 370
			FLUORANTHENE		TRG	60	UG/KG	J 370
			PYRENE		TRG	62	UG/KG	J 370
215-0012	CLP SVOC	CLP SVOC	BENZO(A) ANTHRACENE	REG	TRG	150	UG/KG	J 390
			BENZO(A) PYRENE		TRG	180	UG/KG	J 390
			BENZO(B) FLUORANTHENE		TRG	210	UG/KG	J 390
			BENZO(K) FLUORANTHENE		TRG	85	UG/KG	J 390

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215-0012	CLP SVOC	CLP SVOC	CHRYSENE	REG	TRG 150	UG/KG	J	390
			FLUORANTHENE		TRG 170	UG/KG	J	390
			INDENO(1,2,3-CD) PYRENE		TRG 41	UG/KG	J	390
			PHENANTHRENE		TRG 74	UG/KG	J	390
			PYRENE		TRG 190	UG/KG	J	390
215-0013	CLP SVOC	CLP SVOC	BENZO(B) FLUORANTHENE	REG	TRG 67	UG/KG	J	340
			BIS(2-ETHYLHEXYL) PHTHALATE		TRG 37	UG/KG	J	340
215-0014	CLP SVOC	CLP SVOC	BENZO(A) ANTHRACENE	REG	TRG 40	UG/KG	J	380
			BENZO(A) PYRENE		TRG 59	UG/KG	J	380
			BENZO(B) FLUORANTHENE		TRG 72	UG/KG	J	380
			CHRYSENE		TRG 40	UG/KG	J	380
			FLUORANTHENE		TRG 50	UG/KG	J	380
			PYRENE		TRG 60	UG/KG	J	380
215-0016	CLP SVOC	CLP SVOC	1,2,4-TRICHLOROBENZENE	REG	TRG 1100	UG/KG	J	7000
			1,4-DICHLOROBENZENE		TRG 1300	UG/KG	J	7000
			2-CHLOROPHENOL		TRG 1100	UG/KG	J	7000
			ACENAPHTHENE		TRG 1400	UG/KG	J	7000
			FLUORANTHENE		TRG 1700	UG/KG	J	7000
			PYRENE		TRG 1700	UG/KG	J	7000
215-0018	CLP SVOC	CLP SVOC	BIS(2-ETHYLHEXYL) PHTHALATE	REG	TRG 2	UG/L	J	4
			DI-N-BUTYL PHTHALATE (DBP)		TRG 1	UG/L	J	10
215-0021	CLP SVOC	CLP SVOC	ACENAPHTHYLENE	FD	TRG 85	UG/KG	J	380
			ANTHRACENE		TRG 170	UG/KG	J	380
			BENZO(A) ANTHRACENE		TRG 360	UG/KG	J	380
			BENZO(A) PYRENE		TRG 310	UG/KG	J	380
			BENZO(B) FLUORANTHENE		TRG 310	UG/KG	J	380
			BENZO(G,H,I) PERYLENE		TRG 89	UG/KG	J	380
			BENZO(K) FLUORANTHENE		TRG 130	UG/KG	J	380
			CHRYSENE		TRG 320	UG/KG	J	380
			FLUORANTHENE		TRG 610	UG/KG		380
			INDENO(1,2,3-CD) PYRENE		TRG 96	UG/KG	J	380
			PHENANTHRENE		TRG 65	UG/KG	J	380
			PYRENE		TRG 600	UG/KG		380
215-0023	CLP SVOC	CLP SVOC	2-METHYLNAPHTHALENE	REG	TRG 3	UG/L	J	20
			BIS(2-ETHYLHEXYL) PHTHALATE		TRG 2	UG/L	J	8
			DI-N-BUTYL PHTHALATE (DBP)		TRG 7	UG/L	J	20
			NAPHTHALENE		TRG 3	UG/L	J	20
			PYRENE		TRG 3	UG/L	J	20
215-0008	CLP VOC	CLP VOC	1,1,1-TRICHLOROETHANE	REG	TRG 3	UG/L	J	50
			2-BUTANONE (MEK)		TRG 2	UG/L	J	50

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215-0018	CLP VOC	CLP VOC	ACETONE	REG	TRG 4	UG/L	J	10
215-0022	CLP VOC	CLP VOC	1,1,1-TRICHLOROETHANE	TB	TRG 2	UG/L	J	10
215-0023	CLP VOC	CLP VOC	ACETONE	REG	TRG 23	UG/L	J	50
215-0024	CLP VOC	CLP VOC	ACETONE	ER	TRG 5	UG/L	J	10
215-0025	CLP VOC	CLP VOC	1,1,1-TRICHLOROETHANE	TB	TRG 0.3	UG/L	J	10
			ACETONE		TRG 4	UG/L	J	10
215-0003-MD N/A		CLP METALS	ALUMINUM	MD	TRG 12500	MG/KG	P	14.7
			ALUMINUM		TRG 12500	MG/KG	P	14.7
			ANTIMONY	TRG	0.67	MG/KG	BP	1.4
			ANTIMONY	TRG	0.67	MG/KG	BP	1.4
			ARSENIC	TRG	6.1	MG/KG	P	2.3
			ARSENIC	TRG	6.1	MG/KG	P	2.3
			BARIUM	TRG	302	MG/KG	P	45.1
			BARIUM	TRG	302	MG/KG	P	45.1
			BERYLLIUM	TRG	0.16	MG/KG	BP	1.1
			BERYLLIUM	TRG	0.16	MG/KG	BP	1.1
			CADMIUM	TRG	0.24	MG/KG	BP	1.1
			CADMIUM	TRG	0.24	MG/KG	BP	1.1
			CALCIUM	TRG	3190	MG/KG	P	1130
			CALCIUM	TRG	3190	MG/KG	P	1130
			CHROMIUM	TRG	52.5	MG/KG	P	2.3
			CHROMIUM	TRG	52.5	MG/KG	P	2.3
			COBALT	TRG	12.5	MG/KG	P	11.3
			COBALT	TRG	12.5	MG/KG	P	11.3
			COPPER	TRG	21.6	MG/KG	P	5.6
			COPPER	TRG	21.6	MG/KG	P	5.6
			IRON	TRG	20500	MG/KG	P	22.6
			IRON	TRG	20500	MG/KG	P	22.6
			LEAD	TRG	13.3	MG/KG	P	0.68
			LEAD	TRG	13.3	MG/KG	P	0.68
			MAGNESIUM	TRG	5710	MG/KG	P	1130
			MAGNESIUM	TRG	5710	MG/KG	P	1130
			MANGANESE	TRG	887	MG/KG	P	3.4
			MANGANESE	TRG	887	MG/KG	P	3.4
			NICKEL	TRG	65.1	MG/KG	P	9
			NICKEL	TRG	65.1	MG/KG	P	9
			POTASSIUM	TRG	1380	MG/KG	P	1130
			POTASSIUM	TRG	1380	MG/KG	P	1130
			SELENIUM	TRG	0.51	MG/KG	BP	1.1
			SELENIUM	TRG	0.51	MG/KG	BP	1.1
			VANADIUM	TRG	36	MG/KG	P	11.3
			VANADIUM	TRG	36	MG/KG	P	11.3
			ZINC	TRG	51	MG/KG	P	4.5

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Sample Number	Test Panel	Test Group	Compound Name	Smpl Type	Rslt Type	Unit of Measure	Qlfr	Detect Limit
215-0003-MD	N/A	CLP METALS	ZINC	MD	TRG	51	MG/KG	P 4.5
215-0001	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	47	MG/KG	12
215-0002	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	260	MG/KG	52
215-0004	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	160	MG/KG	11
215-0006	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	68	MG/KG	12
215-0007	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	220	MG/KG	56
215-0008	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	1.6	MG/L	0.5
215-0009	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	450	MG/KG	58
215-0010	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	170	MG/KG	11
215-0012	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	98	MG/KG	12
215-0013	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	350	MG/KG	52
215-0014	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	180	MG/KG	12
215-0015	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	83	MG/KG	11
215-0016	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	140	MG/KG	53
215-0017	TPHEXT	8015 PETROLEUM MOTOR OIL	TPH: DIESEL	REG	TRG	870	MG/KG	110
					TRG	350	MG/KG	110
215-0018	TPHEXT	8015 PETROLEUM MOTOR OIL		REG	TRG	1.5	MG/L	0.5
215-0021	TPHEXT	8015 PETROLEUM MOTOR OIL		FD	TRG	79	MG/KG	12
215-0024	TPHEXT	8015 PETROLEUM MOTOR OIL		ER	TRG	0.7	MG/L	0.5
215-0001	TPHPRG	8015 PETROLEUM TPH: GASOLINE		REG	TRG	0.02	MG/KG	J 0.59
215-0008	TPHPRG	8015 PETROLEUM TPH: GASOLINE		REG	TRG	0.04	MG/L	J 0.25
215-0022	TPHPRG	8015 PETROLEUM TPH: GASOLINE		TB	TRG	0.09	MG/L	0.05
215-0023	TPHPRG	8015 PETROLEUM TPH: GASOLINE		REG	TRG	0.05	MG/L	J 0.05
215-0024	TPHPRG	8015 PETROLEUM TPH: GASOLINE		ER	TRG	0.01	MG/L	J 0.05
215-0025	TPHPRG	8015 PETROLEUM TPH: GASOLINE		TB	TRG	0.008	MG/L	J 0.05

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Table 215-3
Analyte Detection Synopsis

Sample Number	Compound Name	CAS Number	Sample Matrix	Result	Unit of Measure	Detect Limit	Qualfr	Start Depth	End Depth	PRG (1998)	PRG Desc	Units	Backgrd Area	Backgrd Conc	Backgrd Units	RBCA DESC	RBCA Units
215-0016	1,2,4-TRICHLOROBENZENE	120-82-1	SOIL	1100	UG/KG	7000	J	0.0	1.0	475.3489	nc ^a	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	1,4-DICHLOROBENZENE	106-48-7	SOIL	1300	UG/KG	7000	J	0.0	1.0	3.0312	ca ^b	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	2-CHLOROPHENOL	95-57-8	SOIL	1100	UG/KG	7000	J	0.0	1.0	59.2221	nc	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	4,4'-DDD	72-54-8	SOIL	10	UG/KG	3.8		0.0	1.0	2.3555	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	4,4'-DDD	72-54-8	SOIL	2.1	UG/KG	3.5	J	0.0	1.0	2.3555	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	4,4'-DDD	72-54-8	SOIL	37	UG/KG	3.5		3.0	3.5	2.3555	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0015	4,4'-DDD	72-54-8	SOIL	4	UG/KG	3.7		3.0	3.5	2.3555	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0017	4,4'-DDD	72-54-8	SOIL	4.5	UG/KG	3.5		3.0	4.0	2.3555	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	4,4'-DDE	72-55-9	SOIL	1.4	UG/KG	4	J	0.0	1.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	4,4'-DDE	72-55-9	SOIL	1.6	UG/KG	3.7	J	3.0	3.5	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	4,4'-DDE	72-55-9	SOIL	19	UG/KG	3.5		3.0	3.5	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	4,4'-DDE	72-55-9	SOIL	2.6	UG/KG	3.8	J	0.0	1.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	4,4'-DDE	72-55-9	SOIL	3.4	UG/KG	3.5	J	0.0	1.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	4,4'-DDT	50-29-3	SOIL	17	UG/KG	3.7		3.0	3.5	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	4,4'-DDT	50-29-3	SOIL	18	UG/KG	3.8		0.0	1.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	4,4'-DDT	50-29-3	SOIL	260	UG/KG	3.5		3.0	3.5	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	4,4'-DDT	50-29-3	SOIL	3.8	UG/KG	4	J	0.0	1.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	4,4'-DDT	50-29-3	SOIL	39	UG/KG	3.5		0.0	1.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0015	4,4'-DDT	50-29-3	SOIL	5	UG/KG	3.7		3.0	3.5	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0007	4,4'-DDT	50-29-3	SOIL	5.1	UG/KG	3.7		3.0	3.5	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0017	4,4'-DDT	50-29-3	SOIL	5.2	UG/KG	3.5		3.0	4.0	1.6627	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	ACENAPHTHENE	83-32-9	SOIL	1400	UG/KG	7000	J	0.0	1.0	2550.2754	nc	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	ACENAPHTHYLENE	208-96-8	SOIL	330	UG/KG	760	J	0.0	1.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0004	ACENAPHTHYLENE	208-96-8	SOIL	68	UG/KG	370	J	3.0	3.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0012	ALDRIN	309-00-2	SOIL	0.6	UG/KG	2	J	0.0	1.0	0.0261	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	ALDRIN	309-00-2	SOIL	1.4	UG/KG	2	J	0.0	1.0	0.0261	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	ALDRIN	309-00-2	SOIL	3.6	UG/KG	1.8		0.0	1.0	0.0261	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0017	ALDRIN	309-00-2	SOIL	3.9	UG/KG	1.8		3.0	4.0	0.0261	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	ALDRIN	309-00-2	SOIL	32	UG/KG	1.8		3.0	3.5	0.0261	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0012	ALPHA-BHC	319-84-6	SOIL	0.62	UG/KG	2	J	0.0	1.0	0.0864	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0007	ALPHA-CHLORDANE	5103-71-9	SOIL	1.1	UG/KG	1.9	J	3.0	3.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0007	ALUMINUM	7429-90-5	SOIL	10100	MG/KG	14.7	P	3.0	3.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0009	ALUMINUM	7429-90-5	SOIL	10600	MG/KG	15	P	0.0	1.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0003	ALUMINUM	7429-90-5	SOIL	11400	MG/KG	14.7	P	0.0	1.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0013	ALUMINUM	7429-90-5	SOIL	12200	MG/KG	13.5	P	3.0	3.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0014	ALUMINUM	7429-90-5	SOIL	12800	MG/KG	15.1	P	0.0	1.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0006	ALUMINUM	7429-90-5	SOIL	13100	MG/KG	15.6	P	0.0	1.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0012	ALUMINUM	7429-90-5	SOIL	14900	MG/KG	15.5	P	0.0	1.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0001	ALUMINUM	7429-90-5	SOIL	19100	MG/KG	15.3	P	0.0	0.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0004	ALUMINUM	7429-90-5	SOIL	5190	MG/KG	14.7	P	3.0	3.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0002	ALUMINUM	7429-90-5	SOIL	7170	MG/KG	34	P	3.0	3.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0015	ALUMINUM	7429-90-5	SOIL	8620	MG/KG	14.7	P	3.0	3.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0010	ALUMINUM	7429-90-5	SOIL	8930	MG/KG	14.6	P	3.0	3.5	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0016	ALUMINUM	7429-90-5	SOIL	9520	MG/KG	13.7	P	0.0	1.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0017	ALUMINUM	7429-90-5	SOIL	9900	MG/KG	13.9	P	3.0	4.0	74948.1780	nc	MG/KG	YELLOW	11091	MG/KG	NA	NA
215-0009	ANTHRACENE	120-12-7	SOIL	350	UG/KG	760	J	0.0	1.0	14332.8803	nc	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	ANTHRACENE	120-12-7	SOIL	79	UG/KG	370	J	3.0	3.5	14332.8803	nc	MG/KG	YELLOW	NA	NA	NA	NA

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Table 215-3

Analyte Detection Synopsis

Sample Number	Compound Name	CAS Number	Sample Matrix	Result	Unit of Measure	Detect Limit	Qlfr	Start Depth	End Depth	PRG (1998)	PRG Desc	PRG Units	Backgrd Area	Backgrd Conc	Backgrd Units	RBCA DESC	RBCA Units
215-0013	ANTIMONY	7440-36-0	SOIL	0.5	MG/KG	1.2	BP	3.0	3.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0003	ANTIMONY	7440-36-0	SOIL	0.54	MG/KG	1.4	BP	0.0	1.0	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0010	ANTIMONY	7440-36-0	SOIL	0.55	MG/KG	1.3	BP	3.0	3.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0012	ANTIMONY	7440-36-0	SOIL	0.61	MG/KG	1.4	BP	0.0	1.0	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0007	ANTIMONY	7440-36-0	SOIL	0.78	MG/KG	1.4	BP	3.0	3.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0009	ANTIMONY	7440-36-0	SOIL	0.83	MG/KG	1.4	BP	0.0	1.0	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0015	ANTIMONY	7440-36-0	SOIL	1.2	MG/KG	1.4	BP	3.0	3.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0014	ANTIMONY	7440-36-0	SOIL	1.3	MG/KG	1.4	BP	0.0	1.0	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0006	ANTIMONY	7440-36-0	SOIL	1.7	MG/KG	1.4	P	0.0	1.0	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0001	ANTIMONY	7440-36-0	SOIL	1.7	MG/KG	1.4	P	0.0	0.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0004	ANTIMONY	7440-36-0	SOIL	10.1	MG/KG	1.4	P	3.0	3.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0002	ANTIMONY	7440-36-0	SOIL	13.7	MG/KG	3.25	P	3.0	3.5	29.9815	nc	MG/KG	YELLOW	4.2	MG/KG	NA	NA
215-0002	AROCLOR-1016 (PCB-1016)	12674-11-2	SOIL	79	UG/KG	35		3.0	3.5	3.4027	nc	MG/KG	YELLOW	NA	NA	NA	NA
215-0016	AROCLOR-1260 (PCB-1260)	11096-82-5	SOIL	160	UG/KG	35		0.0	1.0	0.1978	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	AROCLOR-1260 (PCB-1260)	11096-82-5	SOIL	370	UG/KG	35		3.0	3.5	0.1978	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	AROCLOR-1260 (PCB-1260)	11096-82-5	SOIL	83	UG/KG	37		3.0	3.5	0.1978	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	ARSENIC	7440-38-2	SOIL	17.4	MG/KG	5.25	PN	3.0	3.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0017	ARSENIC	7440-38-2	SOIL	3.2	MG/KG	2.1	PN	3.0	4.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0004	ARSENIC	7440-38-2	SOIL	4.3	MG/KG	2.3	PN	3.0	3.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0015	ARSENIC	7440-38-2	SOIL	4.4	MG/KG	2.3	PN	3.0	3.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0003	ARSENIC	7440-38-2	SOIL	5.4	MG/KG	2.3	PN	0.0	1.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0010	ARSENIC	7440-38-2	SOIL	6.2	MG/KG	2.2	PN	3.0	3.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0013	ARSENIC	7440-38-2	SOIL	6.8	MG/KG	2.1	PN	3.0	3.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0006	ARSENIC	7440-38-2	SOIL	7.2	MG/KG	2.4	PN	0.0	1.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0014	ARSENIC	7440-38-2	SOIL	7.5	MG/KG	2.3	PN	0.0	1.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0012	ARSENIC	7440-38-2	SOIL	8	MG/KG	2.4	PN	0.0	1.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0007	ARSENIC	7440-38-2	SOIL	8.2	MG/KG	2.3	PN	3.0	3.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0009	ARSENIC	7440-38-2	SOIL	8.3	MG/KG	2.3	PN	0.0	1.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0001	ARSENIC	7440-38-2	SOIL	8.7	MG/KG	2.4	PN	0.0	0.5	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0016	ARSENIC	7440-38-2	SOIL	9.8	MG/KG	2.1	PN	0.0	1.0	0.3767	ca	MG/KG	YELLOW	20.3	MG/KG	NA	NA
215-0004	BARIUM	7440-39-3	SOIL	103	MG/KG	45.3	PN	3.0	3.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0015	BARIUM	7440-39-3	SOIL	106	MG/KG	45.1	PN	3.0	3.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0012	BARIUM	7440-39-3	SOIL	107	MG/KG	47.7	PN	0.0	1.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0010	BARIUM	7440-39-3	SOIL	115	MG/KG	44.8	PN	3.0	3.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0009	BARIUM	7440-39-3	SOIL	193	MG/KG	46.1	PN	0.0	1.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0014	BARIUM	7440-39-3	SOIL	205	MG/KG	46.6	PN	0.0	1.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0007	BARIUM	7440-39-3	SOIL	210	MG/KG	45.1	PN	3.0	3.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0013	BARIUM	7440-39-3	SOIL	263	MG/KG	41.6	PN	3.0	3.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0002	BARIUM	7440-39-3	SOIL	275	MG/KG	105	PN	3.0	3.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0003	BARIUM	7440-39-3	SOIL	283	MG/KG	45.1	PN	0.0	1.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0006	BARIUM	7440-39-3	SOIL	373	MG/KG	48.1	PN	0.0	1.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0001	BARIUM	7440-39-3	SOIL	499	MG/KG	47.2	PN	0.0	0.5	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0016	BARIUM	7440-39-3	SOIL	70.7	MG/KG	42.2	PN	0.0	1.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0017	BARIUM	7440-39-3	SOIL	77.4	MG/KG	42.8	PN	3.0	4.0	5154.7992	nc	MG/KG	YELLOW	99.4	MG/KG	NA	NA
215-0009	BENZO(A)ANTHRACENE	56-55-3	SOIL	1100	UG/KG	760	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	BENZO(A)ANTHRACENE	56-55-3	SOIL	1200	UG/KG	6900	J	3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0012	BENZO(A)ANTHRACENE	56-55-3	SOIL	150	UG/KG	390	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA

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Table 215-3

Analyte Detection Synopsis

Sample Number	Compound Name	CAS Number	Sample Matrix	Result	Unit of Measure	Detect Limit	Qlftr	Start Depth	End Depth	PRG (1998)	PRG Desc	PRG Units	Backgrd Area	Backgrd Conc	Backgrd Units	RBCA DESC	RBCA Units
215-0014	BENZO(A)ANTHRACENE	56-55-3	SOIL	40	UG/KG	380	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0010	BENZO(A)ANTHRACENE	56-55-3	SOIL	49	UG/KG	370	J	3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	BENZO(A)ANTHRACENE	56-55-3	SOIL	510	UG/KG	370		3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0001	BENZO(A)ANTHRACENE	56-55-3	SOIL	68	UG/KG	390	J	0.0	0.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	BENZO(A)ANTHRACENE	56-55-3	SOIL	87	UG/KG	400	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	BENZO(A)PYRENE	50-32-8	SOIL	110	UG/KG	400	J	0.0	1.0	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	BENZO(A)PYRENE	50-32-8	SOIL	1200	UG/KG	760		0.0	1.0	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	BENZO(A)PYRENE	50-32-8	SOIL	1200	UG/KG	6900	J	3.0	3.5	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0012	BENZO(A)PYRENE	50-32-8	SOIL	180	UG/KG	390	J	0.0	1.0	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0010	BENZO(A)PYRENE	50-32-8	SOIL	55	UG/KG	370	J	3.0	3.5	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0014	BENZO(A)PYRENE	50-32-8	SOIL	59	UG/KG	380	J	0.0	1.0	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0001	BENZO(A)PYRENE	50-32-8	SOIL	68	UG/KG	390	J	0.0	0.5	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	BENZO(A)PYRENE	50-32-8	SOIL	810	UG/KG	370		3.0	3.5	0.0557	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	BENZO(B)FLUORANTHENE	205-99-2	SOIL	110	UG/KG	400	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0001	BENZO(B)FLUORANTHENE	205-99-2	SOIL	110	UG/KG	390	J	0.0	0.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	BENZO(B)FLUORANTHENE	205-99-2	SOIL	1300	UG/KG	760		0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0002	BENZO(B)FLUORANTHENE	205-99-2	SOIL	1800	UG/KG	6900	J	3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0012	BENZO(B)FLUORANTHENE	205-99-2	SOIL	210	UG/KG	390	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0010	BENZO(B)FLUORANTHENE	205-99-2	SOIL	59	UG/KG	370	J	3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0013	BENZO(B)FLUORANTHENE	205-99-2	SOIL	67	UG/KG	340	J	3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0014	BENZO(B)FLUORANTHENE	205-99-2	SOIL	72	UG/KG	380	J	0.0	1.0	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0007	BENZO(B)FLUORANTHENE	205-99-2	SOIL	80	UG/KG	740	J	3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	BENZO(B)FLUORANTHENE	205-99-2	SOIL	830	UG/KG	370		3.0	3.5	0.5570	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	BENZO(G,H,I)PERYLENE	191-24-2	SOIL	300	UG/KG	370	J	3.0	3.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0004	BENZO(K)FLUORANTHENE	207-08-9	SOIL	270	UG/KG	370	J	3.0	3.5	0.6100	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0009	BENZO(K)FLUORANTHENE	207-08-9	SOIL	440	UG/KG	760	J	0.0	1.0	0.6100	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0006	BENZO(K)FLUORANTHENE	207-08-9	SOIL	56	UG/KG	400	J	0.0	1.0	0.6100	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0012	BENZO(K)FLUORANTHENE	207-08-9	SOIL	85	UG/KG	390	J	0.0	1.0	0.6100	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	BERYLLIUM	7440-41-7	SOIL	0.074	MG/KG	1.1	BP	3.0	3.5	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0003	BERYLLIUM	7440-41-7	SOIL	0.13	MG/KG	1.1	BP	0.0	1.0	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0015	BERYLLIUM	7440-41-7	SOIL	0.13	MG/KG	1.1	BP	3.0	3.5	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0010	BERYLLIUM	7440-41-7	SOIL	0.2	MG/KG	1.1	BP	3.0	3.5	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0007	BERYLLIUM	7440-41-7	SOIL	0.24	MG/KG	1.1	BP	3.0	3.5	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0013	BERYLLIUM	7440-41-7	SOIL	0.27	MG/KG	1	BP	3.0	3.5	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0009	BERYLLIUM	7440-41-7	SOIL	0.34	MG/KG	1.2	BP	0.0	1.0	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0006	BERYLLIUM	7440-41-7	SOIL	0.4	MG/KG	1.2	BP	0.0	1.0	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0014	BERYLLIUM	7440-41-7	SOIL	0.43	MG/KG	1.2	BP	0.0	1.0	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0001	BERYLLIUM	7440-41-7	SOIL	0.56	MG/KG	1.2	BP	0.0	0.5	150.0000	nc	MG/KG	YELLOW	0.95	MG/KG	NA	NA
215-0013	BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	SOIL	37	UG/KG	340	J	3.0	3.5	31.7155	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0004	BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	SOIL	95	UG/KG	370	J	3.0	3.5	31.7155	ca	MG/KG	YELLOW	NA	NA	NA	NA
215-0010	CADMIUM	7440-43-9	SOIL	0.1	MG/KG	1.1	BP	3.0	3.5	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA
215-0017	CADMIUM	7440-43-9	SOIL	0.1	MG/KG	1.1	BP	3.0	4.0	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA
215-0012	CADMIUM	7440-43-9	SOIL	0.12	MG/KG	1.2	BP	0.0	1.0	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA
215-0003	CADMIUM	7440-43-9	SOIL	0.21	MG/KG	1.1	BP	0.0	1.0	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA
215-0016	CADMIUM	7440-43-9	SOIL	0.25	MG/KG	1.1	BP	0.0	1.0	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA
215-0004	CADMIUM	7440-43-9	SOIL	0.27	MG/KG	1.1	BP	3.0	3.5	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA
215-0014	CADMIUM	7440-43-9	SOIL	0.28	MG/KG	1.2	BP	0.0	1.0	9.0000	nc	MG/KG	YELLOW	1.6	MG/KG	NA	NA

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Table 215-3
Analyte Detection Synopsis

Sample Number	Compound Name	CAS Number	Sample Matrix	Result	Unit of Measure	Detect Limit	Qlfr	Start Depth	End Depth	PRG (1998)	PRG Desc	PRG Units	Backgrd Area	Backgrd Conc	Backgrd Units	RBCA DESC	RBCA Units
215-0008	MERCURY	7439-97-6	WATER	0.46	UG/L	0.2	CV	8.0	8.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0023	MOLYBDENUM	7439-98-7	WATER	16.1	UG/L	5	P	8.0	12.0	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0018	MOLYBDENUM	7439-98-7	WATER	34.6	UG/L	5	P	8.0	9.0	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0008	MOLYBDENUM	7439-98-7	WATER	68	UG/L	5	P	8.0	8.5	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0018	MOTOR OIL	IT-003	WATER	1.5	MG/L	0.5		8.0	9.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0008	MOTOR OIL	IT-003	WATER	1.6	MG/L	0.5		8.0	8.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0023	NAPHTHALENE	91-20-3	WATER	3	UG/L	20	J	8.0	12.0	6.2029	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0008	NICKEL	7440-02-0	WATER	270	UG/L	40	P	8.0	8.5	730.0000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0023	NICKEL	7440-02-0	WATER	42.3	UG/L	40	P	8.0	12.0	730.0000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0018	NICKEL	7440-02-0	WATER	8.5	UG/L	40	BP	8.0	9.0	730.0000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0008	POTASSIUM	97/740	WATER	164000	UG/L	5000	PE	8.0	8.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0018	POTASSIUM	97/740	WATER	209000	UG/L	250000	PE	8.0	9.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0023	POTASSIUM	97/740	WATER	284000	UG/L	250000	PE	8.0	12.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0023	PYRENE	129-00-0	WATER	3	UG/L	20	J	8.0	12.0	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0023	SELENIUM	7782-49-2	WATER	5.2	UG/L	5	P	8.0	12.0	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0018	SELENIUM	7782-49-2	WATER	5.5	UG/L	5	P	8.0	9.0	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0008	SELENIUM	7782-49-2	WATER	5.9	UG/L	5	P	8.0	8.5	182.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0008	SODIUM	7440-23-5	WATER	4320000	UG/L	5000	P	8.0	8.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0023	SODIUM	7440-23-5	WATER	6280000	UG/L	250000	P	8.0	12.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0018	SODIUM	7440-23-5	WATER	6410000	UG/L	250000	P	8.0	9.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0008	THALLIUM	7440-28-0	WATER	2	UG/L	2	P	8.0	8.5	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0018	THALLIUM	7440-28-0	WATER	3.2	UG/L	2	P	8.0	9.0	NA	NA	NA	YELLOW	NA	NA	NA	NA
215-0008	TPH: GASOLINE	8006-61-9	WATER	0.04	MG/L	0.25	J	8.0	8.5	NA	NA	NA	YELLOW	NA	NA	ca (UG/L)	
215-0023	TPH: GASOLINE	8006-61-9	WATER	0.05	MG/L	0.05	J	8.0	12.0	NA	NA	NA	YELLOW	NA	NA	ca (UG/L)	
215-0008	VANADIUM	7440-62-2	WATER	120	UG/L	50	P	8.0	8.5	255.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0023	VANADIUM	7440-62-2	WATER	4.7	UG/L	50	BP	8.0	12.0	255.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0018	VANADIUM	7440-62-2	WATER	9.8	UG/L	50	BP	8.0	9.0	255.5000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0023	ZINC	7440-66-6	WATER	122	UG/L	20	P	8.0	12.0	10950.0000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0008	ZINC	7440-66-6	WATER	237	UG/L	20	P	8.0	8.5	10950.0000	nc	UG/L	YELLOW	NA	NA	NA	NA
215-0018	ZINC	7440-66-6	WATER	6.3	UG/L	20	BP	8.0	9.0	10950.0000	nc	UG/L	YELLOW	NA	NA	NA	NA

nc^a: Chemical concentration based on a non-carcinogenic hazard index of 1.0.

ca^b: Chemical concentration based on a carcinogenic risk of 1E-06.

B: Value greater than instrument detect limit, but less than contract required quantitation limit.

E: Exceeded instrument calibration.

J: Estimated value.

Z: The chromatographic pattern of the sample does not match the pattern of the calibration standard.

see Appendix B for complete list of data qualifier

Table 215-4
Phase 2C Part II Proposed Sample Summary
Parcel 215

Project No. 773526

Sample #	Type	Matrix	Purpose	Sample Depth (ft)**	Analytical Parameters	Lab Type*
215-0024	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0025	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0026	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/PCBs, CLP Metals	F
215-0027	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/PCBs, CLP Metals	F
215-0028	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0029	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/PCBs, CLP Metals	F
215-0030	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0031	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0032	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP Metals	F
215-0033	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0034	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0035	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP Metals	F
215-0036	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP Metals	F
215-0037	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP SVOC	F
215-0038	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP SVOC	F
215-0039	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP SVOC	F
215-0040	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP SVOC	F
215-0041	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP SVOC	F

Table 215-4
Phase 2C Part II Proposed Sample Summary
Parcel 215

Project No. 773526

Sample #	Type	Matrix	Purpose	Sample Depth (ft)**	Analytical Parameters	Lab Type*
215-0042	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP SVOC	F
215-0043	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP Metals	F
215-0044	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0045	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0046	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0047	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0048	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0049	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0050	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0051	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0052	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0053	Surface Soil	Soil	Phase 2C	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0054	Subsurface Soil	Soil	Phase 2C	3.0 - 3.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0055	Hydropunch	Water	Phase 2C	8.0 - 12.0	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F
215-0056	Hydropunch	Water	Field Duplicate (1)	8.0 - 12.0	CLP Pesticides/ PCBs, CLP Metals	F
215-0057	Subsurface Soil	Soil	Field Duplicate (2)	3.0 - 3.5	CLP SVOC	F
215-0058	Surface Soil	Soil	Field Duplicate (3)	0.0 - 0.5	CLP Pesticides/ PCBs, CLP SVOC, CLP Metals	F

Notes:

*Lab Type: M = Mobile, S = Screening, F = Fixed-base.

(1) Field Duplicate of sample 215-0036

** Sample depth indicates depth below subgrade

(2) Field Duplicate of sample 215-0038

Hydropunch taken approximately 3 ft below water table.

(3) Field Duplicate of sample 215-0044

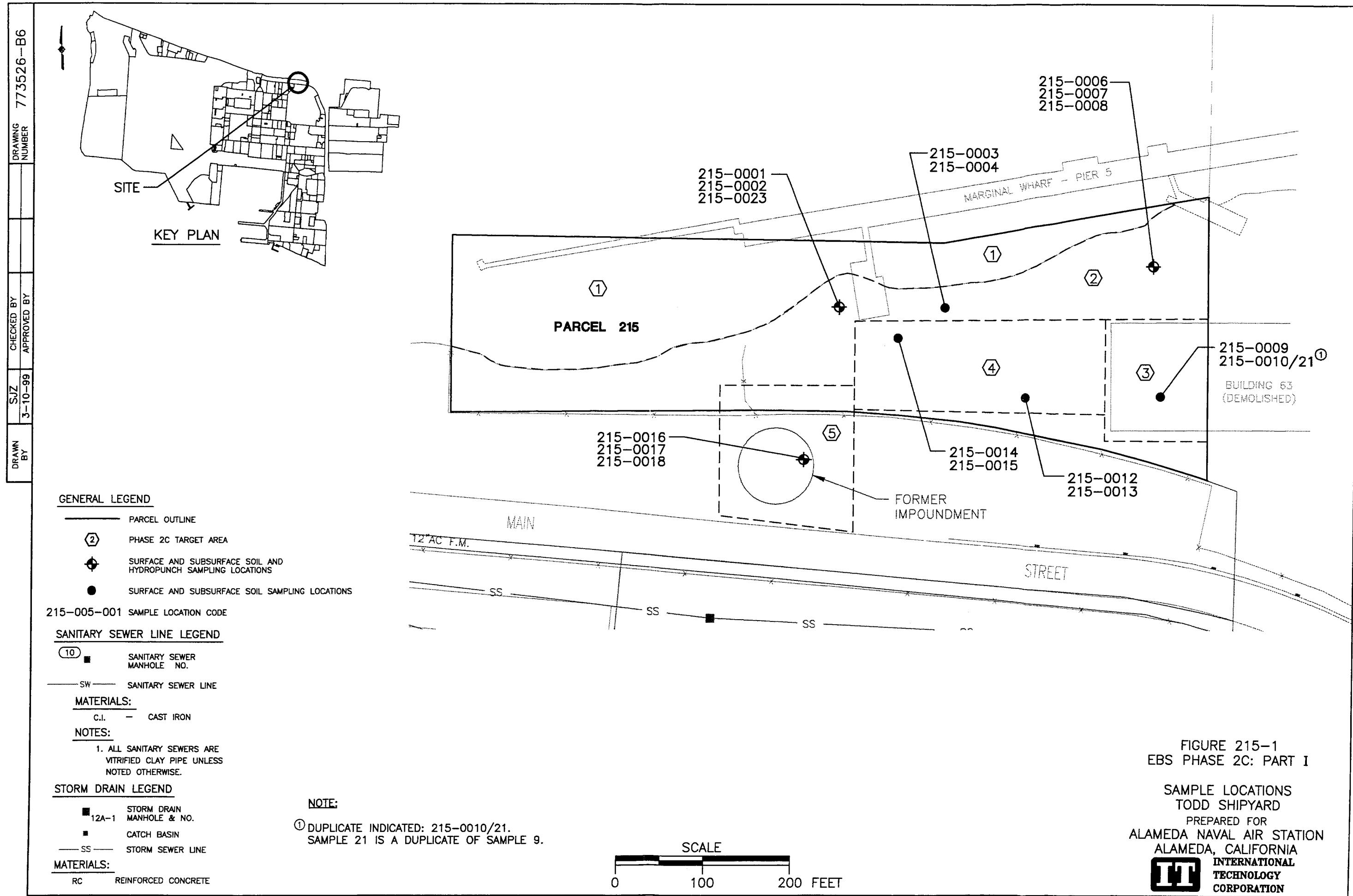
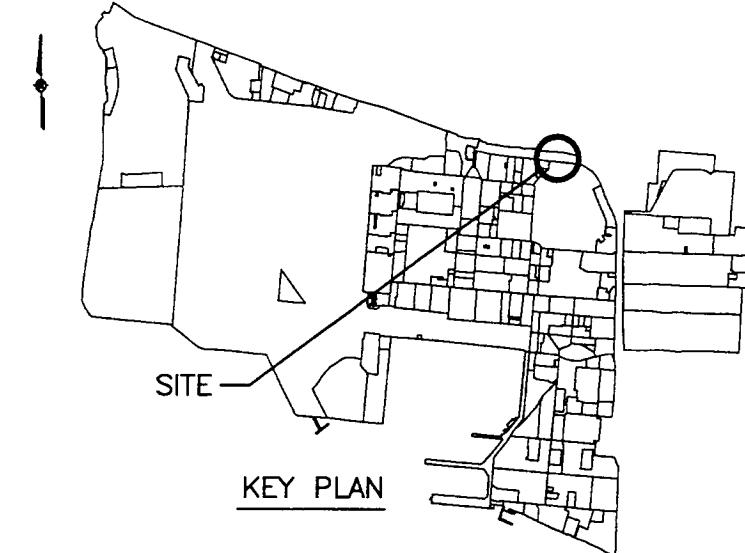


FIGURE 215-1
EBS PHASE 2C: PART I

SAMPLE LOCATIONS
 TODD SHIPYARD
 PREPARED FOR
 ALAMEDA NAVAL AIR STATION
 ALAMEDA, CALIFORNIA
IT
 INTERNATIONAL
 TECHNOLOGY
 CORPORATION

DRAWING 773526-B3



DRAWN BY

CHECKED BY

APPROVED BY

DATE 3-11-99

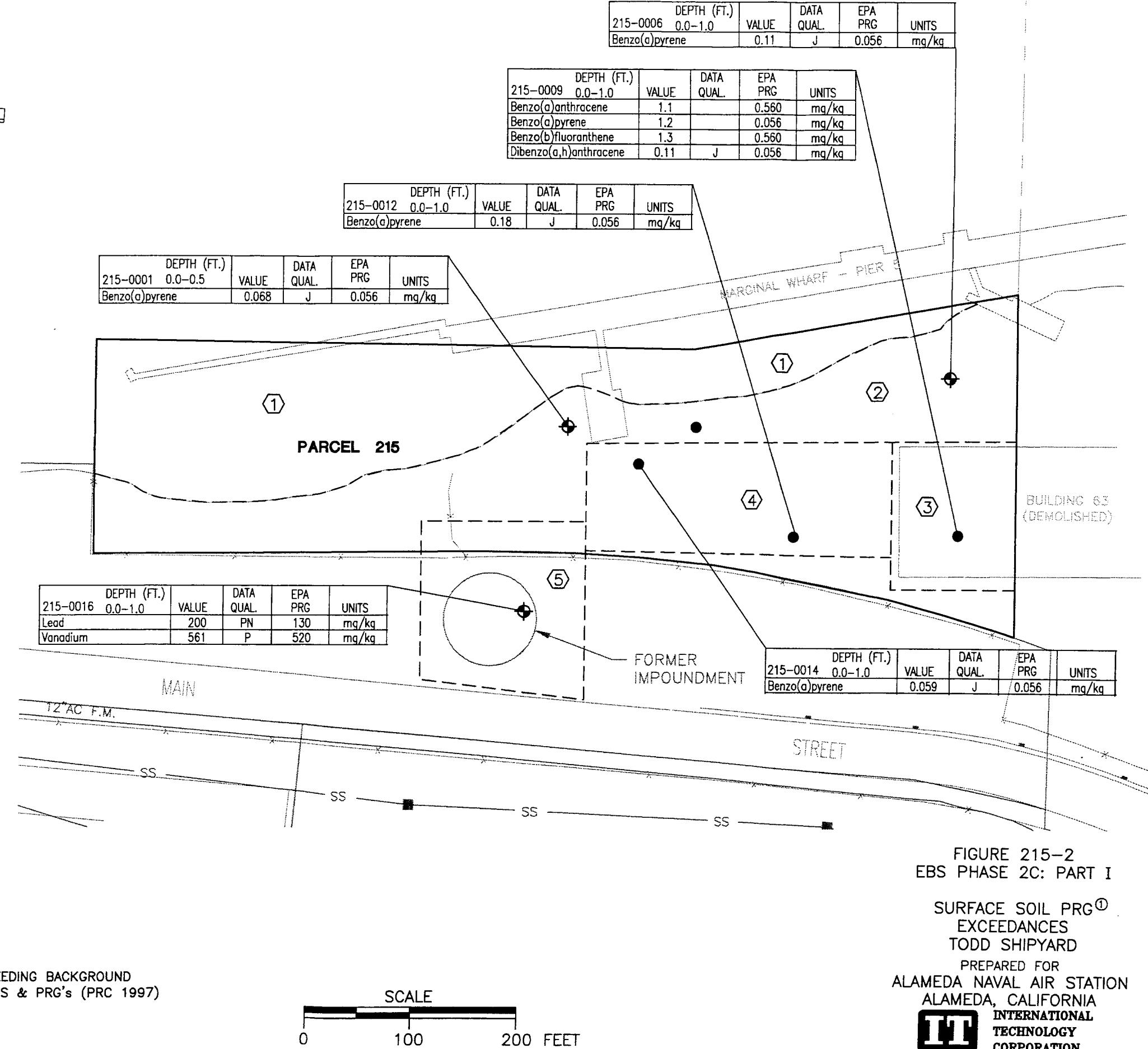


FIGURE 215-2
EBS PHASE 2C: PART I

SURFACE SOIL PRG^①
EXCEEDANCES

TODD SHIPYARD

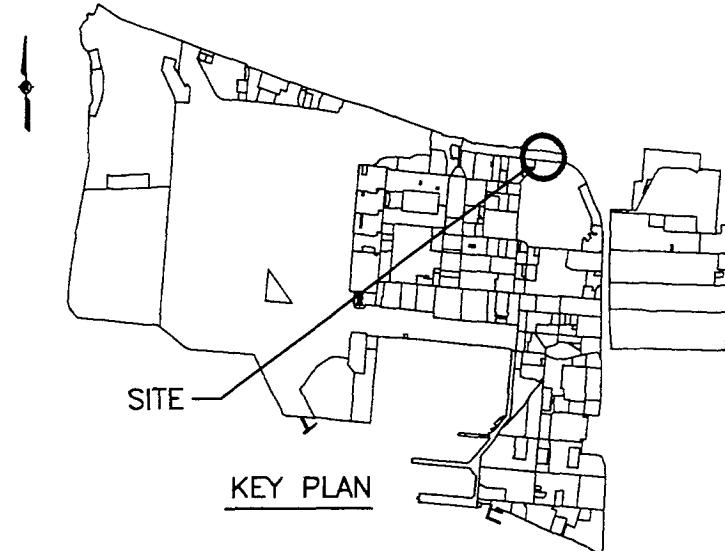
PREPARED FOR
ALAMEDA NAVAL AIR STATION
ALAMEDA, CALIFORNIA

INTERNATIONAL
TECHNOLOGY
CORPORATION



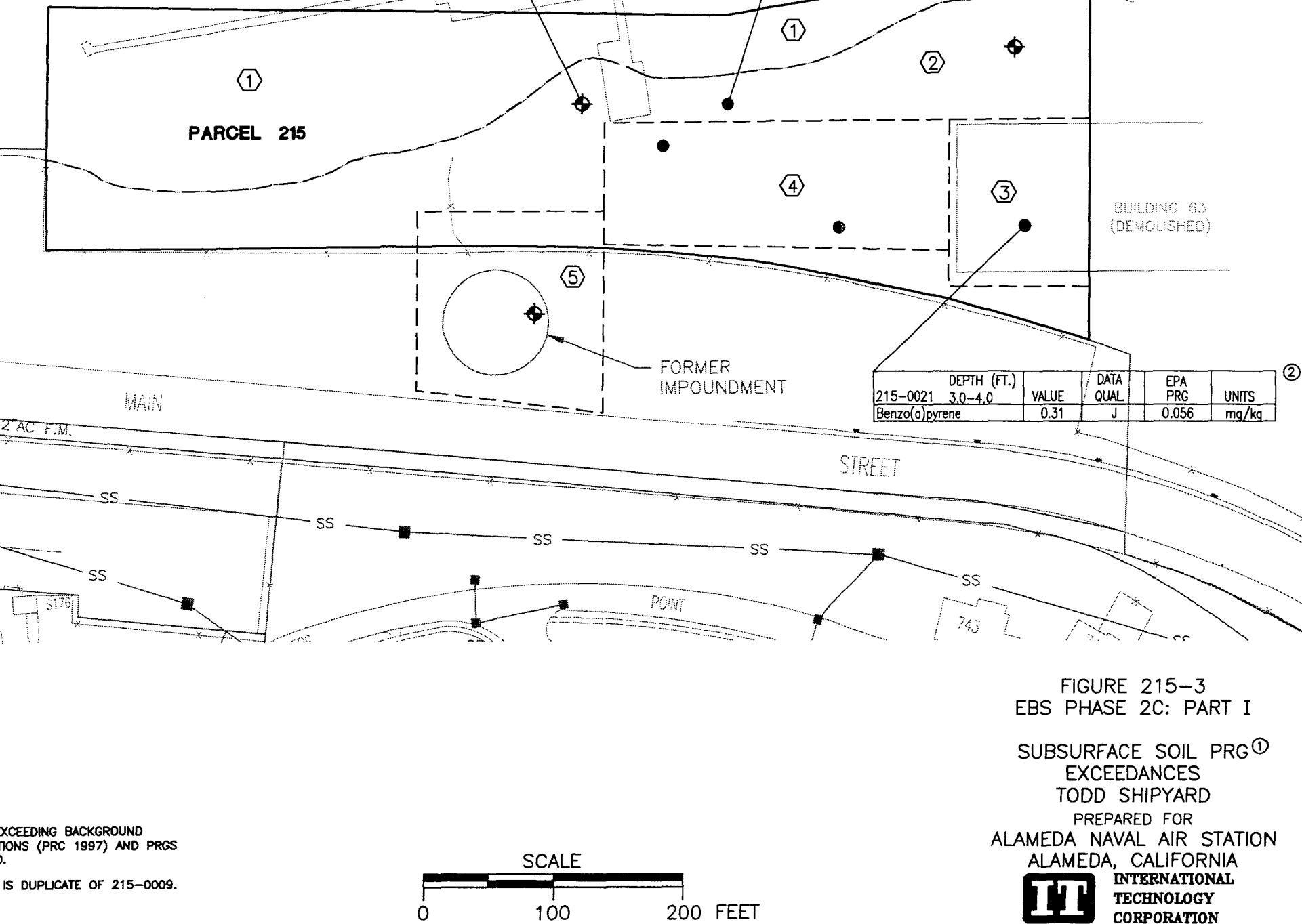
DRAWN BY: SULZ
CHECKED BY: 3-11-99
APPROVED BY:

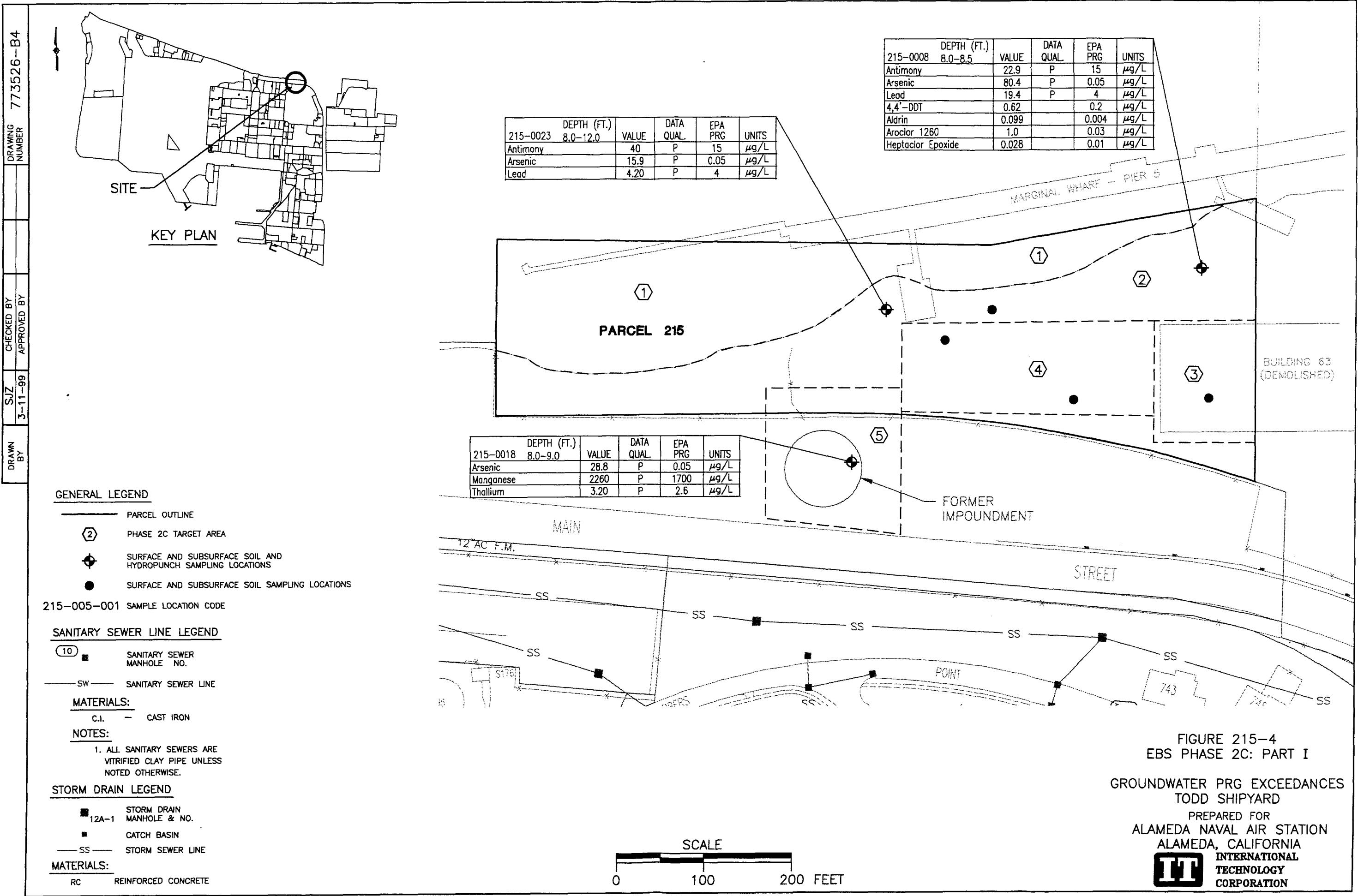
DRAWING NUMBER: 773526-B5

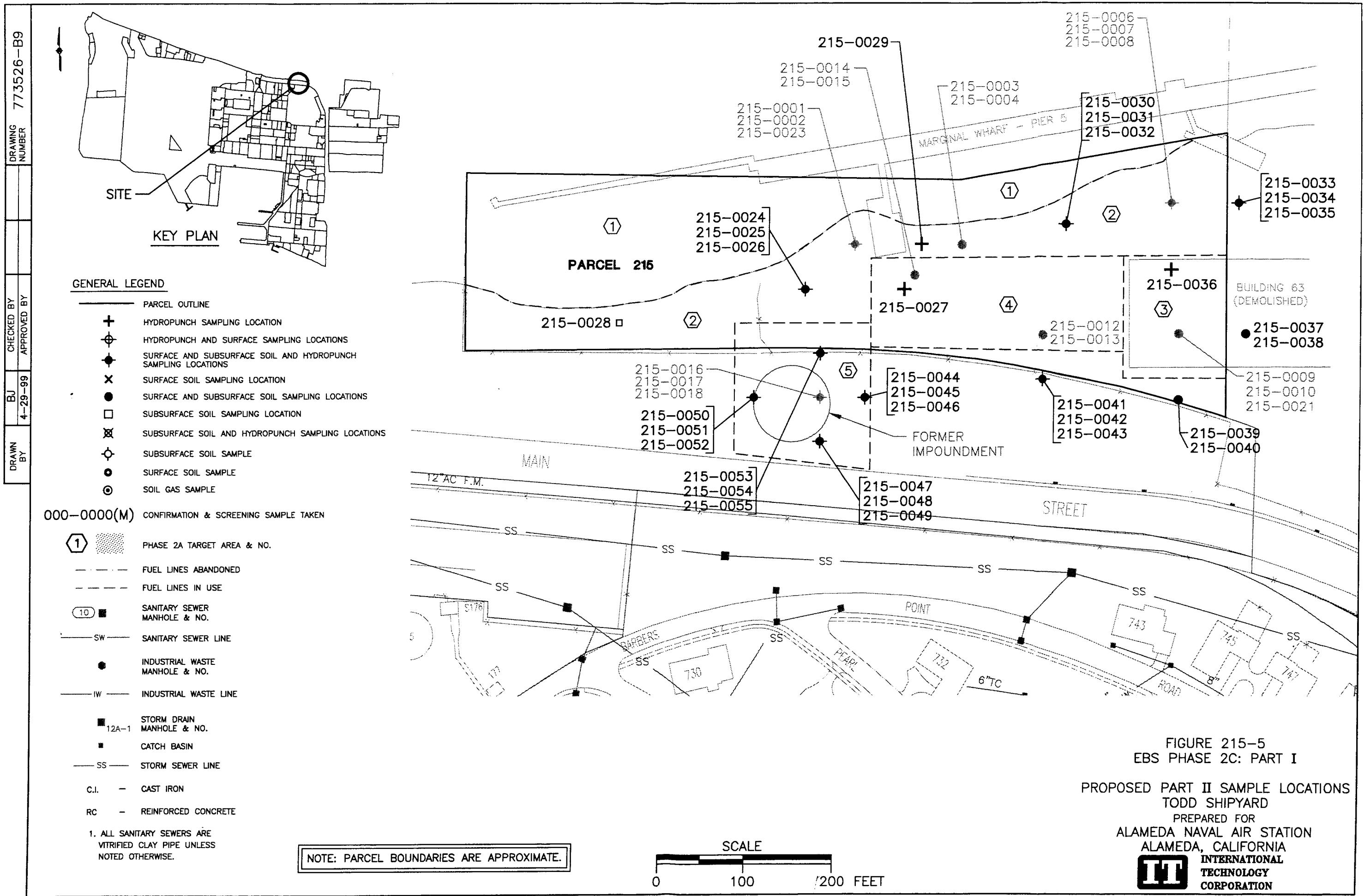


DEPTH (FT.)	215-0004	3.0-3.5	VALUE	DATA QUAL	EPA PRG	UNITS
Chromium			626	PN	210	mg/kg
Lead			241	PN	130	mg/kg
Nickel			394	PN	150	mg/kg
Benzo(a)pyrene			0.81		0.056	mg/kg
Benzo(b)fluoranthene			0.83		0.560	mg/kg

DEPTH (FT.)	215-0002	3.0-3.5	VALUE	DATA QUAL	EPA PRG	UNITS
Aldrin			0.032		0.026	mg/kg
Aroclor 1260			0.37		0.200	mg/kg
Chromium			792	PN	210	mg/kg
Lead			491	PN	130	mg/kg
Nickel			899	PN	150	mg/kg
Benzo(a)anthracene			1.2	J	0.560	mg/kg
Benzo(a)pyrene			1.2	J	0.056	mg/kg
Benzo(a)fluoranthene			1.8	J	0.560	mg/kg







APPENDIX A

LABORATORY DATA REPORTS (FIXED-BASE LABORATORY)

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

International Technology (Martinez)

Attention: Tim Ault

4585 Pacheco Blvd.

Martinez CA 94553

Tel: (510)372-9100 Fax: (510)372-5220

APCL Analytical Report

Service ID #: 801-983386

Received: 06/12/98

Collected by: Eva Clark

Extracted: 06/17-24/98

Collected on: 06/11/98

Tested: 06/16-30/98

Reported: 07/02/98

Sample Description: Soil and Water

Project Description: 7735226 D0110 EFA West

Analysis of Water and Soil Samples**I . Analysis of Water Samples**

Component Analyzed	Method	Unit	CRDL (PQL)	215-0018 98-03386-5	215-0023 98-03386-6	215-0024 98-03386-7	215-0025 98-03386-8
CLP Metals-Routine							
Dilution Factor	CLP-Metal			1	1	1	1
Aluminum	CLP-Metal	µg/L	50.0	158	35.5J	19.1J	-
Antimony	CLP-Metal	µg/L	6.0	4.2J	40.0	< 6.0	-
Arsenic	CLP-Metal	µg/L	10.0	28.8	15.9	< 10.0	-
Barium	CLP-Metal	µg/L	200	843	186J	1.0J	-
Beryllium	CLP-Metal	µg/L	4.0	< 4.0	< 4.0	< 4.0	-
Cadmium	CLP-Metal	µg/L	5.0	0.36J	< 5.0	< 5.0	-
Calcium	CLP-Metal	µg/L	5000	485.000	252,000	146J	-
Chromium	CLP-Metal	µg/L	10.0	4.0J	5.6J	< 10.0	-
Cobalt	CLP-Metal	µg/L	50.0	2.9J	4.8J	< 50.0	-
Copper	CLP-Metal	µg/L	25.0	16.4J	28.7	7.4J	-
Iron	CLP-Metal	µg/L	100	1.250	40.6J	15.1J	-
Lead	CLP-Metal	µg/L	3.0	1.7J	4.2	< 3.0	-
Dilution Factor	CLP-Metal			50	50	1	1
Magnesium	CLP-Metal	µg/L	5000	778,000	716,000	69.4J	-
Dilution Factor	CLP-Metal			1	1	1	1
Manganese	CLP-Metal	µg/L	15.0	2,260	637	1.3J	-
Mercury	CLP-Metal	µg/L	0.20	< 0.20	< 0.20	< 0.20	-
Molybdenum	CLP-Metal	µg/L	5.0	34.6	16.1	< 5.0	-
Nickel	CLP-Metal	µg/L	40.0	8.5J	42.3	2.1J	-
Dilution Factor	CLP-Metal			50	50	1	1
Potassium	CLP-Metal	µg/L	5000	209,000J	264,000	117J	-
Dilution Factor	CLP-Metal			1	1	1	1
Selenium	CLP-Metal	µg/L	5.0	5.5	5.2	< 5.0	-
Silver	CLP-Metal	µg/L	10.0	< 10.0	< 10.0	0.30J	-
Dilution Factor	CLP-Metal			50	50	1	1
Sodium	CLP-Metal	µg/L	5000	6,410,000	6,280,000	2,610J	-
Dilution Factor	CLP-Metal			1	1	1	1
Thallium	CLP-Metal	µg/L	2.0	3.2	< 2.0	< 2.0	-
Vanadium	CLP-Metal	µg/L	50.0	9.8J	4.7J	< 50.0	-
Zinc	CLP-Metal	µg/L	20.0	6.3J	122	18.6J	-
Dilution Factor	M8015V			1	1	1	1
TPH: Gasoline	M8015V	mg/L	0.05	< 0.05	0.05J	0.01J	0.008J

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0018 98-03386-5	215-0023 98-03386-6	215-0024 98-03386-7	215-0025 98-03386-8
CLP: VOC by GC/MS							
Dilution Factor	CLP-VOC			1	5	1	1
Acetone	CLP-VOC	µg/L	10	4J	23J	5J	4J
Benzene	CLP-VOC	µg/L	10	<10	<50	<10	<10
Bromodichloromethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
Bromoform	CLP-VOC	µg/L	10	<10	<50	<10	<10
Bromomethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
2-Butanone (MEK)	CLP-VOC	µg/L	10	<10	<50	<10	<10
Carbon disulfide	CLP-VOC	µg/L	10	<10	<50	<10	<10
Carbon tetrachloride	CLP-VOC	µg/L	10	<10	<50	<10	<10
Chlorobenzene	CLP-VOC	µg/L	10	<10	<50	<10	<10
Chlorodibromomethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
Chloroethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
Chloroform	CLP-VOC	µg/L	10	<10	<50	<10	<10
Chloromethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,1-Dichloroethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,2-Dichloroethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,1-Dichloroethene	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,2-Dichloroethene (total)	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,2-Dichloropropane	CLP-VOC	µg/L	10	<10	<50	<10	<10
cis-1,3-Dichloropropene	CLP-VOC	µg/L	10	<10	<50	<10	<10
trans-1,3-Dichloropropene	CLP-VOC	µg/L	10	<10	<50	<10	<10
Ethylbenzene	CLP-VOC	µg/L	10	<10	<50	<10	<10
2-Hexanone	CLP-VOC	µg/L	10	<10	<50	<10	<10
4-Methyl-2-pentanone (MIBK)	CLP-VOC	µg/L	10	<10	<50	<10	<10
Methylene chloride	CLP-VOC	µg/L	10	<10	<50	<10	<10
Styrene	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,1,2,2-Tetrachloroethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
Tetrachloroethene	CLP-VOC	µg/L	10	<10	<50	<10	<10
Toluene	CLP-VOC	µg/L	10	<10	<50	<10	<10
1,1,1-Trichloroethane	CLP-VOC	µg/L	10	<10	<50	<10	0.3J
1,1,2-Trichloroethane	CLP-VOC	µg/L	10	<10	<50	<10	<10
Trichloroethene	CLP-VOC	µg/L	10	<10	<50	<10	<10
Vinyl chloride	CLP-VOC	µg/L	10	<10	<50	<10	<10
Xylenes (total)	CLP-VOC	µg/L	10	<10	<50	<10	<10

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0018 98-03386-5	215-0023 98-03386-6	215-0024 98-03386-7	215-0025 98-03386-8
CLP: Semi-VOC by GC/MS							
Dilution Factor	CLP-SVOC			1	2	1	1
Acenaphthene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Acenaphthylene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Anthracene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Benzo(a)anthracene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Benzo(a)pyrene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Benzo(b)fluoranthene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Benzo(g,h,i)perylene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Benzo(k)fluoranthene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Bis(2-chloroethoxy) methane	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Bis(2-chloroethyl) ether	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Bis(2-chloroisopropyl) ether	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Bis(2-ethylhexyl) phthalate	CLP-SVOC	µg/L	4	2J	2J	< 4	-
4-Bromophenyl phenyl ether	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Butyl Benzyl Phthalate (BBP)	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Carbazole	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
4-Chloro-3-methylphenol	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
4-Chloroaniline	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
2-Chloronaphthalene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
2-Chlorophenol	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
4-Chlorophenyl phenyl ether	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Chrysene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Di-n-butyl phthalate (DBP)	CLP-SVOC	µg/L	10	1J	7J	< 10	-
Di-n-octyl phthalate (DOP)	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Dibenzo(a,h)anthracene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Dibenzofuran	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
1,2-Dichlorobenzene	CLP-SVOC	µg/L	5	< 5	< 10	< 5	-
1,3-Dichlorobenzene	CLP-SVOC	µg/L	5	< 5	< 10	< 5	-
1,4-Dichlorobenzene	CLP-SVOC	µg/L	5	< 5	< 10	< 5	-
3,3'-Dichlorobenzidine	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
2,4-Dichlorophenol	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Diethyl phthalate (DEP)	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Dimethyl phthalate (DMP)	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
2,4-Dimethylphenol	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
4,6-Dinitro-2-methylphenol	CLP-SVOC	µg/L	25	< 25	< 50	< 25	-
2,4-Dinitrophenol	CLP-SVOC	µg/L	25	< 25	< 50	< 25	-
2,4-Dinitrotoluene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
2,6-Dinitrotoluene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Fluoranthene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Fluorene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Hexachlorobenzene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Hexachlorobutadiene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Hexachlorocyclopentadiene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Hexachloroethane	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Indeno(1,2,3-cd)pyrene	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
Isophorone	CLP-SVOC	µg/L	10	< 10	< 20	< 10	-
2-Methylnaphthalene	CLP-SVOC	µg/L	10	< 10	3J	< 10	-

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0018 98-03386-5	215-0023 98-03386-6	215-0024 98-03386-7	215-0025 98-03386-8
2-Methylphenol (o-Cresol)	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
4-Methylphenol (P-CRESOL)	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
Naphthalene	CLP-SVOC	$\mu\text{g/L}$	10	< 10	3J	< 10	-
2-Nitroaniline	CLP-SVOC	$\mu\text{g/L}$	25	< 25	< 50	< 25	-
3-Nitroaniline	CLP-SVOC	$\mu\text{g/L}$	25	< 25	< 50	< 25	-
4-Nitroaniline	CLP-SVOC	$\mu\text{g/L}$	25	< 25	< 50	< 25	-
Nitrobenzene	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
2-Nitrophenol	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
4-Nitrophenol	CLP-SVOC	$\mu\text{g/L}$	25	< 25	< 50	< 25	-
N-Nitroso-di-n-propylamine	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
N-Nitrosodiphenylamine	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
Pentachlorophenol (PCP)	CLP-SVOC	$\mu\text{g/L}$	25	< 25	< 50	< 25	-
Phenanthere	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
Phenol	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
Pyrene	CLP-SVOC	$\mu\text{g/L}$	10	< 10	3J	< 10	-
1,2,4-Trichlorobenzene	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
2,4,5-Trichlorophenol	CLP-SVOC	$\mu\text{g/L}$	25	< 25	< 50	< 25	-
2,4,6-Trichlorophenol	CLP-SVOC	$\mu\text{g/L}$	10	< 10	< 20	< 10	-
CLP: Organochlorine pesticides & PCB							
Dilution Factor	CLP-Pest			1	1	1	1
Aldrin	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
beta-BHC	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
alpha-BHC	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
delta-BHC	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
gamma-BHC (Lindane)	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
alpha-Chlordan	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
gamma-Chlordan	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
4,4'-DDD	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
4,4'-DDE	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
4,4'-DDT	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Dieldrin	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Endosulfan I	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
Endosulfan II	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Endosulfan sulfate	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Endrin	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Endrin aldehyde	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Endrin ketone	CLP-Pest	$\mu\text{g/L}$	0.10	< 0.10	< 0.10	< 0.10	-
Heptachlor	CLP-Pest	$\mu\text{g/L}$	0.050	< 0.050	< 0.050	< 0.050	-
Heptachlor epoxide	CLP-Pest	$\mu\text{g/L}$	0.01	< 0.01	< 0.01	< 0.01	-
Methoxychlor	CLP-Pest	$\mu\text{g/L}$	0.50	< 0.50	< 0.50	< 0.50	-
Toxaphene	CLP-Pest	$\mu\text{g/L}$	3.0	< 3.0	< 3.0	< 3.0	-
Aroclor-1016 (PCB-1016)	CLP-Pest	$\mu\text{g/L}$	1.0	< 1.0	< 1.0	< 1.0	-
Aroclor-1221 (PCB-1221)	CLP-Pest	$\mu\text{g/L}$	2.0	< 2.0	< 2.0	< 2.0	-
Aroclor-1232 (PCB-1232)	CLP-Pest	$\mu\text{g/L}$	1.0	< 1.0	< 1.0	< 1.0	-
Aroclor-1242 (PCB-1242)	CLP-Pest	$\mu\text{g/L}$	1.0	< 1.0	< 1.0	< 1.0	-
Aroclor-1248 (PCB-1248)	CLP-Pest	$\mu\text{g/L}$	1.0	< 1.0	< 1.0	< 1.0	-
Aroclor-1254 (PCB-1254)	CLP-Pest	$\mu\text{g/L}$	1.0	< 1.0	< 1.0	< 1.0	-
Aroclor-1260 (PCB-1260)	CLP-Pest	$\mu\text{g/L}$	1.0	< 1.0	< 1.0	< 1.0	-

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				215-0018 98-03386-5	215-0024 98-03386-7
Dilution Factor	M8015E			1	1
TPH: Diesel	M8015E	mg/L	0.1	<0.1	<0.1
Dilution Factor	M8015E			1	1
Motor Oil	M8015E	mg/L	0.5	1.5	0.7

II . Analysis of Soil Samples

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-001 98-03386-1	215-002 98-03386-2	215-0016 98-03386-3	215-0017 98-03386-4
Percent Moisture	ASTM-D2216	W%	0.5	15.3	4.7	5.3	6.6
pH	9040	pH unit	0.1	8.95	8.91	9.50	10.4
CLP Metals-Routine							
Dilution Factor	CLP-Metal			1	2.5	1	1
Aluminum	CLP-Metal	mg/kg	12.5	19,100	7,170	9,520	9,900
Antimony	CLP-Metal	mg/kg	1.2	1.7	13.7	<1.3	<1.3
Arsenic	CLP-Metal	mg/kg	2.0	8.7	17.4	9.8	3.2
Barium	CLP-Metal	mg/kg	40.0	499	275	70.7	77.4
Beryllium	CLP-Metal	mg/kg	1.0	0.56J	<2.6	<1.1	<1.1
Cadmium	CLP-Metal	mg/kg	1.0	0.39J	0.32J	0.25J	0.10J
Calcium	CLP-Metal	mg/kg	1000	5,140	7,590	18,300	57,900
Chromium	CLP-Metal	mg/kg	2.0	112	792	43.4	27.1
Cobalt	CLP-Metal	mg/kg	10.0	19.4	28.1	9.7J	6.1J
Copper	CLP-Metal	mg/kg	5.0	74.1	533	117	17.4
Iron	CLP-Metal	mg/kg	20.0	41,600	70,900	22,500	12,700
Lead	CLP-Metal	mg/kg	0.60	44.1	491	200	10.5
Magnesium	CLP-Metal	mg/kg	1000	10,900	20,700	5,120	5,860
Manganese	CLP-Metal	mg/kg	3.0	1,860	738	290	310
Dilution Factor	CLP-Metal			1	1	1	1
Mercury	CLP-Metal	mg/kg	0.10	0.30	2.2	1.5	<0.11
Dilution Factor	CLP-Metal			1	2.5	1	1
Molybdenum	CLP-Metal	mg/kg	1.3	0.26J	3.9	0.94J	0.20J
Nickel	CLP-Metal	mg/kg	8.0	126	899	66.3	29.6
Dilution Factor	CLP-Metal			1	1	1	1
Potassium	CLP-Metal	mg/kg	1000	2,530	673J	871J	661J
Selenium	CLP-Metal	mg/kg	1.0	1.5	<1.0	<1.1	0.59J
Silver	CLP-Metal	mg/kg	2.0	<2.4	<2.1	<2.1	<2.1
Sodium	CLP-Metal	mg/kg	1000	<1180	219J	1,370	73.4J
Thallium	CLP-Metal	mg/kg	0.50	1.9	0.57	<0.53	<0.54
Vanadium	CLP-Metal	mg/kg	10.0	63.9	283	561	23.0
Zinc	CLP-Metal	mg/kg	4.0	142	838	126	51.4
Dilution Factor	M8015V			1	1	1	1
TPH: Gasoline	M8015V	mg/kg	0.5	0.02J	<0.52	<0.53	<0.54
Dilution Factor	M8015E			1	5	5	10
TPH: Diesel	M8015E	mg/kg	10	<12	<52	<53	350
Dilution Factor	M8015E			1	5	5	10
Motor Oil	M8015E	mg/kg	10	47	260	140	870

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-001 98-03386-1	215-002 98-03386-2	215-0016 98-03386-3	215-0017 98-03386-4
CLP: Semi-VOC by GC/MS							
Dilution Factor	CLP-SVOC			1	20	20	20
Acenaphthene	CLP-SVOC	µg/kg	330	<390	<6900	1,400J	<7100
Acenaphthylene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Anthracene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Benzo(a)anthracene	CLP-SVOC	µg/kg	330	68J	1,200J	<7000	<7100
Benzo(a)pyrene	CLP-SVOC	µg/kg	330	68J	1,200J	<7000	<7100
Benzo(b)fluoranthene	CLP-SVOC	µg/kg	330	110J	1,800J	<7000	<7100
Benzo(g,h,i)perylene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Benzo(k)fluoranthene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Bis(2-chloroethoxy) methane	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Bis(2-chloroethyl) ether	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Bis(2-chloroisopropyl) ether	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Bis(2-ethylhexyl) phthalate	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
4-Bromophenyl phenyl ether	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Butyl Benzyl Phthalate (BBP)	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Carbazole	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
4-Chloro-3-methylphenol	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
4-Chloroaniline	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
2-Chloronaphthalene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
2-Chlorophenol	CLP-SVOC	µg/kg	330	<390	<6900	1,100J	<7100
4-Chlorophenyl phenyl ether	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Chrysene	CLP-SVOC	µg/kg	330	74J	1,100J	<7000	<7100
Di-n-butyl phthalate (DBP)	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Di-n-octyl phthalate (DOP)	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Dibenzo(a,h)anthracene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Dibenzofuran	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
1,2-Dichlorobenzene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
1,3-Dichlorobenzene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
1,4-Dichlorobenzene	CLP-SVOC	µg/kg	330	<390	<6900	1,300J	<7100
3,3'-Dichlorobenzidine	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
2,4-Dichlorophenol	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Diethyl phthalate (DEP)	CLP-SVOC	µg/kg	330	81J	<6900	<7000	<7100
Dimethyl phthalate (DMP)	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
2,4-Dimethylphenol	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
4,6-Dinitro-2-methylphenol	CLP-SVOC	µg/kg	830	<980	<17000	<18000	<18000
2,4-Dinitrophenol	CLP-SVOC	µg/kg	830	<980	<17000	<18000	<18000
2,4-Dinitrotoluene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
2,6-Dinitrotoluene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Fluoranthene	CLP-SVOC	µg/kg	330	90J	2,100J	1,700J	<7100
Fluorene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Hexachlorobenzene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Hexachlorobutadiene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Hexachlorocyclopentadiene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Hexachloroethane	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Indeno(1,2,3-cd)pyrene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
Isophorone	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100
2-Methylnaphthalene	CLP-SVOC	µg/kg	330	<390	<6900	<7000	<7100

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-001 98-03386-1	215-002 98-03386-2	215-0016 98-03386-3	215-0017 98-03386-4
2-Methylphenol (o-Cresol)	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
4-METHYLPHENOL (P-CRESOL)	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
Naphthalene	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
2-Nitroaniline	CLP-SVOC	µg/kg	830	< 980	< 17000	< 18000	< 18000
3-Nitroaniline	CLP-SVOC	µg/kg	830	< 980	< 17000	< 18000	< 18000
4-Nitroaniline	CLP-SVOC	µg/kg	830	< 980	< 17000	< 18000	< 18000
Nitrobenzene	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
2-Nitrophenol	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
4-Nitrophenol	CLP-SVOC	µg/kg	830	< 980	< 17000	< 18000	< 18000
N-Nitroso-di-n-propylamine	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
N-Nitrosodiphenylamine	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
Pentachlorophenol (PCP)	CLP-SVOC	µg/kg	830	< 980	< 17000	< 18000	< 18000
Phenanthrene	CLP-SVOC	µg/kg	330	< 390	940J	< 7000	< 7100
Phenol	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
Pyrene	CLP-SVOC	µg/kg	330	83J	1,800J	1,700J	< 7100
1,2,4-Trichlorobenzene	CLP-SVOC	µg/kg	330	< 390	< 6900	1,100J	< 7100
2,4,5-Trichlorophenol	CLP-SVOC	µg/kg	830	< 980	< 17000	< 18000	< 18000
2,4,6-Trichlorophenol	CLP-SVOC	µg/kg	330	< 390	< 6900	< 7000	< 7100
CLP: Organochlorine pesticides & PCB							
Dilution Factor	CLP-Pest			1	1	1	1
Aldrin	CLP-Pest	µg/kg	1.7	< 2.0	32	3.6	3.9
beta-BHC	CLP-Pest	µg/kg	1.7	< 2.0	< 1.8	< 1.8	< 1.8
alpha-BHC	CLP-Pest	µg/kg	1.7	< 2.0	< 1.8	< 1.8	< 1.8
delta-BHC	CLP-Pest	µg/kg	1.7	< 2.0	< 1.8	< 1.8	< 1.8
gamma-BHC (Lindane)	CLP-Pest	µg/kg	1.7	< 2.0	< 1.8	< 1.8	< 1.8
alpha-Chlordane	CLP-Pest	µg/kg	1.7	< 2.0	< 1.8	< 1.8	< 1.8
gamma-Chlordane	CLP-Pest	µg/kg	1.7	< 2.0	15	2.4	1.3J
4,4'-DDD	CLP-Pest	µg/kg	3.3	< 3.9	37	2.1J	4.5
4,4'-DDE	CLP-Pest	µg/kg	3.3	< 3.9	19	3.4J	< 3.5
4,4'-DDT	CLP-Pest	µg/kg	3.3	< 3.9	260	39	5.2
Dieldrin	CLP-Pest	µg/kg	3.3	< 3.9	12	< 3.5	1.9J
Endosulfan I	CLP-Pest	µg/kg	1.7	< 2.0	2.7	< 1.8	< 1.8
Endosulfan II	CLP-Pest	µg/kg	3.3	< 3.9	2.8J	1.6J	< 3.5
Endosulfan sulfate	CLP-Pest	µg/kg	3.3	< 3.9	< 3.5	< 3.5	< 3.5
Endrin	CLP-Pest	µg/kg	3.3	< 3.9	2.3J	28	4.2
Endrin aldehyde	CLP-Pest	µg/kg	3.3	< 3.9	23	13	< 3.5
Endrin ketone	CLP-Pest	µg/kg	3.3	< 3.9	21	6.0	< 3.5
Heptachlor	CLP-Pest	µg/kg	1.7	< 2.0	2.8	< 1.8	< 1.8
Heptachlor epoxide	CLP-Pest	µg/kg	1.7	1.1J	18	2.4	1.4J
Methoxychlor	CLP-Pest	µg/kg	17	< 20	65	< 18	3.7J
Toxaphene	CLP-Pest	µg/kg	170	< 200	< 180	< 180	< 180
Aroclor-1016 (PCB-1016)	CLP-Pest	µg/kg	33	< 39	79	< 35	< 35
Aroclor-1221 (PCB-1221)	CLP-Pest	µg/kg	67	< 79	< 70	< 71	< 72
Aroclor-1232 (PCB-1232)	CLP-Pest	µg/kg	33	< 39	< 35	< 35	< 35
Aroclor-1242 (PCB-1242)	CLP-Pest	µg/kg	33	< 39	< 35	< 35	< 35
Aroclor-1248 (PCB-1248)	CLP-Pest	µg/kg	33	< 39	< 35	< 35	< 35
Aroclor-1254 (PCB-1254)	CLP-Pest	µg/kg	33	< 39	< 35	< 35	< 35
Aroclor-1260 (PCB-1260)	CLP-Pest	µg/kg	33	< 39	370	160	< 35

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL	Analysis Result	
				215-002 98-03386-2	215-0017 98-03386-4
CLP: VOC by GC/MS					
Dilution Factor	CLP-VOC		1	1	
Acetone	CLP-VOC	µg/kg	10	< 10	< 11
Benzene	CLP-VOC	µg/kg	10	< 10	< 11
Bromodichloromethane	CLP-VOC	µg/kg	10	< 10	< 11
Bromoform	CLP-VOC	µg/kg	10	< 10	< 11
Bromomethane	CLP-VOC	µg/kg	10	< 10	< 11
2-Butanone (MEK)	CLP-VOC	µg/kg	10	< 10	< 11
Carbon disulfide	CLP-VOC	µg/kg	10	< 10	< 11
Carbon tetrachloride	CLP-VOC	µg/kg	10	< 10	< 11
Chlorobenzene	CLP-VOC	µg/kg	10	< 10	< 11
Chlorodibromomethane	CLP-VOC	µg/kg	10	< 10	< 11
Chloroethane	CLP-VOC	µg/kg	10	< 10	< 11
Chloroform	CLP-VOC	µg/kg	10	< 10	< 11
Chloromethane	CLP-VOC	µg/kg	10	< 10	< 11
1,1-Dichloroethane	CLP-VOC	µg/kg	10	< 10	< 11
1,2-Dichloroethane	CLP-VOC	µg/kg	10	< 10	< 11
1,1-Dichloroethene	CLP-VOC	µg/kg	10	< 10	< 11
1,2-Dichloroethene (total)	CLP-VOC	µg/kg	10	< 10	< 11
1,2-Dichloropropane	CLP-VOC	µg/kg	10	< 10	< 11
cis-1,3-Dichloropropene	CLP-VOC	µg/kg	10	< 10	< 11
trans-1,3-Dichloropropene	CLP-VOC	µg/kg	10	< 10	< 11
Ethylbenzene	CLP-VOC	µg/kg	10	< 10	< 11
2-Hexanone	CLP-VOC	µg/kg	10	< 10	< 11
4-Methyl-2-pentanone (MIBK)	CLP-VOC	µg/kg	10	< 10	< 11
Methylene chloride	CLP-VOC	µg/kg	10	< 10	< 11
Styrene	CLP-VOC	µg/kg	10	< 10	< 11
1,1,2,2-Tetrachloroethane	CLP-VOC	µg/kg	10	< 10	< 11
Tetrachloroethene	CLP-VOC	µg/kg	10	< 10	< 11
Toluene	CLP-VOC	µg/kg	10	< 10	< 11
1,1,1-Trichloroethane	CLP-VOC	µg/kg	10	< 10	< 11
1,1,2-Trichloroethane	CLP-VOC	µg/kg	10	< 10	< 11
Trichloroethene	CLP-VOC	µg/kg	10	< 10	< 11
Vinyl chloride	CLP-VOC	µg/kg	10	< 10	< 11
Xylenes (total)	CLP-VOC	µg/kg	10	< 10	< 11

PQL: Practical Quantitation Limit.

MDL: Method Detection Limit.

CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit.

": Analysis is not required.

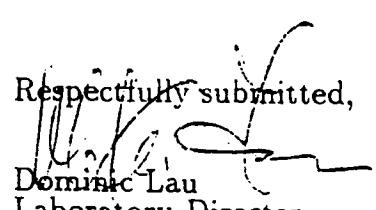
J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

(a) Presence of PCB may cause false positives in pesticides chromatogram.

Respectfully submitted,



Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

Applied P & Ch Laboratory

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Submitted to:

International Technology (Martinez)

Attention: Tim Ault

4585 Pacheco Blvd.

Martinez CA 94553

Tel: (510)372-9100 Fax: (510)372-5220

APCL Analytical Report

Service ID #: 801-983344

Received: 06/11/98

Collected by: Eva Clark

Extracted: 06/18-19/98

Collected on: 06/10/98

Tested: 06/12-28/98

Reported: 07/02/98

Sample Description: Soil and Water

Project Description: 773526 D0110 EPA West

Analysis of Water and Soil Samples**I . Analysis of Water Samples**

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result
				215-0008
				98-03344-5
CLP Metals-Routine				
Dilution Factor	CLP-Metal			1
Aluminum	CLP-Metal	µg/L	50.0	154
Antimony	CLP-Metal	µg/L	6.0	22.9
Arsenic	CLP-Metal	µg/L	10.0	80.4
Barium	CLP-Metal	µg/L	200	98.7J
Beryllium	CLP-Metal	µg/L	4.0	< 4.0
Cadmium	CLP-Metal	µg/L	5.0	1.6J
Calcium	CLP-Metal	µg/L	5000	137,000
Chromium	CLP-Metal	µg/L	10.0	57.0
Cobalt	CLP-Metal	µg/L	50.0	16.4J
Copper	CLP-Metal	µg/L	25.0	406
Iron	CLP-Metal	µg/L	100	513
Lead	CLP-Metal	µg/L	3.0	19.4
Dilution Factor	CLP-Metal			50
Magnesium	CLP-Metal	µg/L	5000	636,000
Dilution Factor	CLP-Metal			1
Manganese	CLP-Metal	µg/L	15.0	1,510
Mercury	CLP-Metal	µg/L	0.20	0.46
Molybdenum	CLP-Metal	µg/L	5.0	68.0
Nickel	CLP-Metal	µg/L	40.0	270
Dilution Factor	CLP-Metal			50
Potassium	CLP-Metal	µg/L	5000	164,000J
Dilution Factor	CLP-Metal			1
Selenium	CLP-Metal	µg/L	5.0	5.9
Silver	CLP-Metal	µg/L	10.0	< 10.0
Dilution Factor	CLP-Metal			50
Sodium	CLP-Metal	µg/L	5000	4,320,000
Dilution Factor	CLP-Metal			1
Thallium	CLP-Metal	µg/L	2.0	2.0
Vanadium	CLP-Metal	µg/L	50.0	120
Zinc	CLP-Metal	µg/L	20.0	237
Dilution Factor	M8015E			1
TPH: Diesel	M8015E	mg/L	0.1	< 0.1
Dilution Factor	M8015E			1
MOTOR OIL	M8015E	mg/L	0.5	1.6

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result
				215-0008 98-03344-5
CLP: Semi-VOC by GC/MS				
Dilution Factor	CLP-SVOC			4
Acenaphthene	CLP-SVOC	µg/L	10	< 40
Acenaphthylene	CLP-SVOC	µg/L	10	< 40
Anthracene	CLP-SVOC	µg/L	10	< 40
Benzo(a)anthracene	CLP-SVOC	µg/L	10	< 40
Benzo(a)pyrene	CLP-SVOC	µg/L	10	< 40
Benzo(b)fluoranthene	CLP-SVOC	µg/L	10	< 40
Benzo(g,h,i)perylene	CLP-SVOC	µg/L	10	< 40
Benzo(k)fluoranthene	CLP-SVOC	µg/L	10	< 40
Bis(2-chloroethoxy) methane	CLP-SVOC	µg/L	10	< 40
Bis(2-chloroethyl) ether	CLP-SVOC	µg/L	10	< 40
Bis(2-chloroisopropyl) ether	CLP-SVOC	µg/L	10	< 40
Bis(2-ethylhexyl) phthalate	CLP-SVOC	µg/L	4	< 16
4-Bromophenyl phenyl ether	CLP-SVOC	µg/L	10	< 40
Butyl Benzyl Phthalate (BBP)	CLP-SVOC	µg/L	10	< 40
Carbazole	CLP-SVOC	µg/L	10	< 40
4-Chloro-3-methylphenol	CLP-SVOC	µg/L	10	< 40
4-Chloroaniline	CLP-SVOC	µg/L	10	< 40
2-Chloronaphthalene	CLP-SVOC	µg/L	10	< 40
2-Chlorophenol	CLP-SVOC	µg/L	10	< 40
4-Chlorophenyl phenyl ether	CLP-SVOC	µg/L	10	< 40
Chrysene	CLP-SVOC	µg/L	10	< 40
Di-n-butyl phthalate (DBP)	CLP-SVOC	µg/L	10	< 40
Di-n-octyl phthalate (DOP)	CLP-SVOC	µg/L	10	< 40
Dibenz(a,h)anthracene	CLP-SVOC	µg/L	10	< 40
Dibenzofuran	CLP-SVOC	µg/L	10	< 40
1,2-Dichlorobenzene	CLP-SVOC	µg/L	5	< 20
1,3-Dichlorobenzene	CLP-SVOC	µg/L	5	< 20
1,4-Dichlorobenzene	CLP-SVOC	µg/L	5	< 20
3,3'-Dichlorobenzidine	CLP-SVOC	µg/L	10	< 40
2,4-Dichlorophenol	CLP-SVOC	µg/L	10	< 40
Diethyl phthalate (DEP)	CLP-SVOC	µg/L	10	< 40
Dimethyl phthalate (DMP)	CLP-SVOC	µg/L	10	< 40
2,4-Dimethylphenol	CLP-SVOC	µg/L	10	< 40
4,6-Dinitro-2-methylphenol	CLP-SVOC	µg/L	25	< 100
2,4-Dinitrophenol	CLP-SVOC	µg/L	25	< 100
2,4-Dinitrotoluene	CLP-SVOC	µg/L	10	< 40
2,6-Dinitrotoluene	CLP-SVOC	µg/L	10	< 40
Fluoranthene	CLP-SVOC	µg/L	10	< 40
Fluorene	CLP-SVOC	µg/L	10	< 40
Hexachlorobenzene	CLP-SVOC	µg/L	10	< 40
Hexachlorobutadiene	CLP-SVOC	µg/L	10	< 40
Hexachlorocyclopentadiene	CLP-SVOC	µg/L	10	< 40
Hexachloroethane	CLP-SVOC	µg/L	10	< 40
Indeno(1,2,3-cd)pyrene	CLP-SVOC	µg/L	10	< 40
Isophorone	CLP-SVOC	µg/L	10	< 40
2-Methylnaphthalene	CLP-SVOC	µg/L	10	< 40

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result	
				215-0008	98-03344-5
2-Methylphenol (o-Cresol)	CLP-SVOC	µg/L	10	< 40	
4-Methylphenol (p-Cresol)	CLP-SVOC	µg/L	10	< 40	
Naphthalene	CLP-SVOC	µg/L	10	< 40	
2-Nitroaniline	CLP-SVOC	µg/L	25	< 100	
3-Nitroaniline	CLP-SVOC	µg/L	25	< 100	
4-Nitroaniline	CLP-SVOC	µg/L	25	< 100	
Nitrobenzene	CLP-SVOC	µg/L	10	< 40	
2-Nitrophenol	CLP-SVOC	µg/L	10	< 40	
4-Nitrophenol	CLP-SVOC	µg/L	25	< 100	
N-Nitroso-di-n-propylamine	CLP-SVOC	µg/L	10	< 40	
N-Nitrosodiphenylamine	CLP-SVOC	µg/L	10	< 40	
Pentachlorophenol (PCP)	CLP-SVOC	µg/L	25	< 100	
Phenanthrene	CLP-SVOC	µg/L	10	< 40	
Phenol	CLP-SVOC	µg/L	10	< 40	
Pyrene	CLP-SVOC	µg/L	10	< 40	
1,2,4-Trichlorobenzene	CLP-SVOC	µg/L	10	< 40	
2,4,5-Trichlorophenol	CLP-SVOC	µg/L	25	< 100	
2,4,6-Trichlorophenol	CLP-SVOC	µg/L	10	< 40	
CLP: Organochlorine pesticides & PCB					
Dilution Factor	CLP-Pest			1	
Aldrin	CLP-Pest	µg/L	0.050	0.099	
beta-BHC	CLP-Pest	µg/L	0.050	< 0.050	
alpha-BHC	CLP-Pest	µg/L	0.050	< 0.050	
delta-BHC	CLP-Pest	µg/L	0.050	< 0.050	
gamma-BHC (Lindane)	CLP-Pest	µg/L	0.050	< 0.050	
alpha-Chlordane	CLP-Pest	µg/L	0.050	< 0.050	
gamma-Chlordane	CLP-Pest	µg/L	0.050	0.046J	
4,4'-DDD	CLP-Pest	µg/L	0.10	0.060J	
4,4'-DDE	CLP-Pest	µg/L	0.10	0.063J	
4,4'-DDT	CLP-Pest	µg/L	0.10	0.62	
Dieldrin	CLP-Pest	µg/L	0.10	< 0.10	
Endosulfan I	CLP-Pest	µg/L	0.050	< 0.050	
Endosulfan II	CLP-Pest	µg/L	0.10	0.024J	
Endosulfan sulfate	CLP-Pest	µg/L	0.10	< 0.10	
Endrin	CLP-Pest	µg/L	0.10	0.22	
Endrin aldehyde	CLP-Pest	µg/L	0.10	< 0.10	
Endrin ketone	CLP-Pest	µg/L	0.10	0.043J	
Heptachlor	CLP-Pest	µg/L	0.050	< 0.050	
Heptachlor epoxide	CLP-Pest	µg/L	0.01	0.028	
Methoxychlor	CLP-Pest	µg/L	0.50	< 0.50	
Toxaphene	CLP-Pest	µg/L	3.0	< 3.0	
Aroclor-1016 (PCB-1016)	CLP-Pest	µg/L	1.0	< 1.0	
Aroclor-1221 (PCB-1221)	CLP-Pest	µg/L	2.0	< 2.0	
Aroclor-1232 (PCB-1232)	CLP-Pest	µg/L	1.0	< 1.0	
Aroclor-1242 (PCB-1242)	CLP-Pest	µg/L	1.0	< 1.0	
Aroclor-1248 (PCB-1248)	CLP-Pest	µg/L	1.0	< 1.0	
Aroclor-1254 (PCB-1254)	CLP-Pest	µg/L	1.0	< 1.0	
Aroclor-1260 (PCB-1260)	CLP-Pest	µg/L	1.0	1.0 (a)	

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result	
				215-0008 98-03344-5	215-0022 98-03344-13
Dilution Factor	M8015V			5	1
TPH: Gasoline	M8015V	mg/L	0.05	0.04J	0.09
CLP: VOC by GC/MS					
Dilution Factor	CLP-VOC			5	1
Acetone	CLP-VOC	µg/L	10	<50	<10
Benzene	CLP-VOC	µg/L	10	<50	<10
Bromodichloromethane	CLP-VOC	µg/L	10	<50	<10
Bromoform	CLP-VOC	µg/L	10	<50	<10
Bromomethane	CLP-VOC	µg/L	10	<50	<10
2-Butanone (MEK)	CLP-VOC	µg/L	10	2J	<10
Carbon disulfide	CLP-VOC	µg/L	10	<50	<10
Carbon tetrachloride	CLP-VOC	µg/L	10	<50	<10
Chlorobenzene	CLP-VOC	µg/L	10	<50	<10
Chlorodibromomethane	CLP-VOC	µg/L	10	<50	<10
Chloroethane	CLP-VOC	µg/L	10	<50	<10
Chloroform	CLP-VOC	µg/L	10	<50	<10
Chloromethane	CLP-VOC	µg/L	10	<50	<10
1,1-Dichloroethane	CLP-VOC	µg/L	10	<50	<10
1,2-Dichloroethane	CLP-VOC	µg/L	10	<50	<10
1,1-Dichloroethene	CLP-VOC	µg/L	10	<50	<10
1,2-Dichloroethene (total)	CLP-VOC	µg/L	10	<50	<10
1,2-Dichloropropane	CLP-VOC	µg/L	10	<50	<10
cis-1,3-Dichloropropene	CLP-VOC	µg/L	10	<50	<10
trans-1,3-Dichloropropene	CLP-VOC	µg/L	10	<50	<10
Ethylbenzene	CLP-VOC	µg/L	10	<50	<10
2-Hexanone	CLP-VOC	µg/L	10	<50	<10
4-Methyl-2-pentanone (MIBK)	CLP-VOC	µg/L	10	<50	<10
Methylene chloride	CLP-VOC	µg/L	10	<50	<10
Styrene	CLP-VOC	µg/L	10	<50	<10
1,1,2,2-Tetrachloroethane	CLP-VOC	µg/L	10	<50	<10
Tetrachloroethene	CLP-VOC	µg/L	10	<50	<10
Toluene	CLP-VOC	µg/L	10	<50	<10
1,1,1-Trichloroethane	CLP-VOC	µg/L	10	3J	2J
1,1,2-Trichloroethane	CLP-VOC	µg/L	10	<50	<10
Trichloroethene	CLP-VOC	µg/L	10	<50	<10
Vinyl chloride	CLP-VOC	µg/L	10	<50	<10
Xylenes (total)	CLP-VOC	µg/L	10	<50	<10

II . Analysis of Soil Samples

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0003 98-03344-1	215-0004 98-03344-2	215-0006 98-03344-3	215-0007 98-03344-4
Percent Moisture	ASTM-D2216	W%	0.5	11.4	11.7	16.9	11.3
pH	9040	pH unit	0.1	7.53	7.44	7.80	7.77

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0003 98-03344-1	215-0004 98-03344-2	215-0006 98-03344-3	215-0007 98-03344-4
CLP Metals-Routine							
Aluminum	CLP-Metal	mg/kg	12.5	11,400	5,190	13,100	10,100
Antimony	CLP-Metal	mg/kg	1.2	0.54J	10.1	1.7	0.78J
Arsenic	CLP-Metal	mg/kg	2.0	5.4	4.3	7.2	8.2
Barium	CLP-Metal	mg/kg	40.0	283	103	373	210
Beryllium	CLP-Metal	mg/kg	1.0	0.13J	0.074J	0.40J	0.24J
Cadmium	CLP-Metal	mg/kg	1.0	0.21J	0.27J	0.38J	0.38J
Calcium	CLP-Metal	mg/kg	1000	2,810	6,480	7,400	5,370
Chromium	CLP-Metal	mg/kg	2.0	47.0	626	51.9	45.6
Cobalt	CLP-Metal	mg/kg	10.0	11.3	15.8	15.6	12.4
Copper	CLP-Metal	mg/kg	5.0	19.4	350	41.5	37.0
Iron	CLP-Metal	mg/kg	20.0	18,600	24,900	25,500	21,000
Lead	CLP-Metal	mg/kg	0.60	12.1	241	70.0	72.4
Magnesium	CLP-Metal	mg/kg	1000	5,220	25,300	7,540	5,640
Manganese	CLP-Metal	mg/kg	3.0	840	403	1,310	630
Mercury	CLP-Metal	mg/kg	0.10	<0.11	0.21	0.27	0.20
Molybdenum	CLP-Metal	mg/kg	1.3	0.17J	0.88J	<1.5	<1.4
Nickel	CLP-Metal	mg/kg	8.0	59.7	394	88.0	60.2
Potassium	CLP-Metal	mg/kg	1000	1,280	477J	1,580	985J
Selenium	CLP-Metal	mg/kg	1.0	0.76J	<1.1	0.85J	<1.1
Silver	CLP-Metal	mg/kg	2.0	<2.3	<2.3	<2.4	<2.3
Sodium	CLP-Metal	mg/kg	1000	<1130	288J	895J	986J
Thallium	CLP-Metal	mg/kg	0.50	<0.56	0.50J	1.5	0.40J
Vanadium	CLP-Metal	mg/kg	10.0	32.5	29.9	31.9	35.2
Zinc	CLP-Metal	mg/kg	4.0	45.9	503	134	532
Dilution Factor	M8015V			1	1	1	1
TPH: Gasoline	M8015V	mg/kg	0.5	<0.56	<0.57	<0.60	<0.56
Dilution Factor	M8015E			1	1	1	5
TPH: Diesel	M8015E	mg/kg	10	<11	<11	<12	<56
Dilution Factor	M8015E			1	1	1	5
MOTOR OIL	M8015E	mg/kg	10	<11	160	88	220

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0003 98-03344-1	215-0004 98-03344-2	215-0006 98-03344-3	215-0007 98-03344-4
CLP: Semi-VOC by GC/MS							
Dilution Factor	CLP-SVOC			1	1	1	2
Acenaphthene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Acenaphthylene	CLP-SVOC	µg/kg	330	<370	68J	<400	<740
Anthracene	CLP-SVOC	µg/kg	330	<370	79J	<400	<740
Benzo(a)anthracene	CLP-SVOC	µg/kg	330	<370	510	87J	<740
Benzo(a)pyrene	CLP-SVOC	µg/kg	330	<370	810	110J	<740
Benzo(b)fluoranthene	CLP-SVOC	µg/kg	330	<370	830	110J	80J
Benzo(g,h,i)perylene	CLP-SVOC	µg/kg	330	<370	300J	<400	<740
Benzo(k)fluoranthene	CLP-SVOC	µg/kg	330	<370	270J	56J	<740
Bis(2-chloroethoxy) methane	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Bis(2-chloroethyl) ether	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Bis(2-chloroisopropyl) ether	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Bis(2-ethylhexyl) phthalate	CLP-SVOC	µg/kg	330	<370	95J	<400	<740
4-Bromophenyl phenyl ether	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Butyl Benzyl Phthalate (BBP)	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Carbazole	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
4-Chloro-3-methylphenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
4-Chloroaniline	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2-Chloronaphthalene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2-Chlorophenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
4-Chlorophenyl phenyl ether	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Chrysene	CLP-SVOC	µg/kg	330	<370	430	83J	<740
Di-n-butyl phthalate (DBP)	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Di-n-octyl phthalate (DOP)	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Dibenzo(a,h)anthracene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Dibenzofuran	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
1,2-Dichlorobenzene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
1,3-Dichlorobenzene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
1,4-Dichlorobenzene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
3,3'-Dichlorobenzidine	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2,4-Dichlorophenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Diethyl phthalate (DEP)	CLP-SVOC	µg/kg	330	<370	1,100	<400	<740
Dimethyl phthalate (DMP)	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2,4-Dimethylphenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
4,6-Dinitro-2-methylphenol	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
2,4-Dinitrophenol	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
2,4-Dinitrotoluene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2,6-Dinitrotoluene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Fluoranthene	CLP-SVOC	µg/kg	330	<370	540	100J	<740
Fluorene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Hexachlorobenzene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Hexachlorobutadiene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Hexachlorocyclopentadiene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Hexachloroethane	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Indeno(1,2,3-cd)pyrene	CLP-SVOC	µg/kg	330	<370	310J	<400	<740
Isophorone	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2-Methylnaphthalene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0003 98-03344-1	215-0004 98-03344-2	215-0006 98-03344-3	215-0007 98-03344-4
2-Methylphenol (o-Cresol)	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
4-Methylphenol (p-Cresol)	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Naphthalene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2-Nitroaniline	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
3-Nitroaniline	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
4-Nitroaniline	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
Nitrobenzene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2-Nitrophenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
4-Nitrophenol	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
N-Nitroso-di-n-propylamine	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
N-Nitrosodiphenylamine	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Pentachlorophenol (PCP)	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
Phenanthrene	CLP-SVOC	µg/kg	330	<370	200J	<400	<740
Phenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
Pyrene	CLP-SVOC	µg/kg	330	<370	590	110J	82J
1,2,4-Trichlorobenzene	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
2,4,5-Trichlorophenol	CLP-SVOC	µg/kg	830	<940	<940	<1000	<1900
2,4,6-Trichlorophenol	CLP-SVOC	µg/kg	330	<370	<370	<400	<740
CLP: Organochlorine pesticides & PCB							
Dilution Factor	CLP-Pest			1	1	1	1
Aldrin	CLP-Pest	µg/kg	1.7	<1.9	<1.9	1.4J	<1.9
beta-BHC	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	<1.9
alpha-BHC	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	<1.9
delta-BHC	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	<1.9
gamma-BHC (Lindane)	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	<1.9
alpha-Chlordane	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	1.1J
gamma-Chlordane	CLP-Pest	µg/kg	1.7	<1.9	2.1	<2.0	1.9J
4,4'-DDD	CLP-Pest	µg/kg	3.3	<3.7	<3.7	<4.0	<3.7
4,4'-DDE	CLP-Pest	µg/kg	3.3	<3.7	1.6J	1.4J	<3.7
4,4'-DDT	CLP-Pest	µg/kg	3.3	<3.7	17	3.8J	5.1
Dieldrin	CLP-Pest	µg/kg	3.3	<3.7	9.2	3.5J	2.7J
Endosulfan I	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	<1.9
Endosulfan II	CLP-Pest	µg/kg	3.3	<3.7	<3.7	<4.0	<3.7
Endosulfan sulfate	CLP-Pest	µg/kg	3.3	<3.7	<3.7	<4.0	<3.7
Endrin	CLP-Pest	µg/kg	3.3	<3.7	9.5	<4.0	2.3J
Endrin aldehyde	CLP-Pest	µg/kg	3.3	<3.7	<3.7	<4.0	<3.7
Endrin ketone	CLP-Pest	µg/kg	3.3	<3.7	6.0	<4.0	<3.7
Heptachlor	CLP-Pest	µg/kg	1.7	<1.9	<1.9	<2.0	<1.9
Heptachlor epoxide	CLP-Pest	µg/kg	1.7	<1.9	1.3J	<2.0	<1.9
Methoxychlor	CLP-Pest	µg/kg	17	<19	15J	6.0J	<19
Toxaphene	CLP-Pest	µg/kg	170	<190	<190	<200	<190
Aroclor-1016 (PCB-1016)	CLP-Pest	µg/kg	33	<37	<37	<40	<37
Aroclor-1221 (PCB-1221)	CLP-Pest	µg/kg	67	<76	<76	<81	<76
Aroclor-1232 (PCB-1232)	CLP-Pest	µg/kg	33	<37	<37	<40	<37
Aroclor-1242 (PCB-1242)	CLP-Pest	µg/kg	33	<37	<37	<40	<37
Aroclor-1248 (PCB-1248)	CLP-Pest	µg/kg	33	<37	<37	<40	<37
Aroclor-1254 (PCB-1254)	CLP-Pest	µg/kg	33	<37	<37	<40	<37
Aroclor-1260 (PCB-1260)	CLP-Pest	µg/kg	33	<37	83 (a)	<40	<37

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0009 98-03344-6	215-0010 98-03344-7	215-0012 98-03344-8	215-0013 98-03344-9
Percent Moisture	ASTM-D2216	W%	0.5	13.2	10.8	16.1	3.8
pH	9040	pH unit	0.1	7.33	7.60	7.65	7.19
CLP Metals-Routine							
Aluminum	CLP-Metal	mg/kg	12.5	10,600	8,930	14,900	12,200
Antimony	CLP-Metal	mg/kg	1.2	0.83J	0.55J	0.61J	0.50J
Arsenic	CLP-Metal	mg/kg	2.0	8.3	6.2	8.0	6.8
Barium	CLP-Metal	mg/kg	40.0	193	115	107	263
Beryllium	CLP-Metal	mg/kg	1.0	0.34J	0.20J	<1.2	0.27J
Cadmium	CLP-Metal	mg/kg	1.0	0.32J	0.10J	0.12J	0.32J
Calcium	CLP-Metal	mg/kg	1000	5,150	4,150	11,300	4,950
Chromium	CLP-Metal	mg/kg	2.0	51.6	45.7	60.7	45.0
Cobalt	CLP-Metal	mg/kg	10.0	13.2	6.5J	13.3	15.1
Copper	CLP-Metal	mg/kg	5.0	29.7	19.3	44.7	32.9
Iron	CLP-Metal	mg/kg	20.0	20,500	16,600	29,700	22,800
Lead	CLP-Metal	mg/kg	0.60	53.4	67.1	85.9	47.8
Magnesium	CLP-Metal	mg/kg	1000	5,700	3,380	8,940	7,180
Manganese	CLP-Metal	mg/kg	3.0	529	148	332	745
Mercury	CLP-Metal	mg/kg	0.10	0.17	0.13	0.43	0.17
Molybdenum	CLP-Metal	mg/kg	1.3	<1.4	0.41J	<1.5	<1.3
Nickel	CLP-Metal	mg/kg	8.0	62.3	36.7	65.8	64.7
Potassium	CLP-Metal	mg/kg	1000	1,280	916J	1,670	1,660
Selenium	CLP-Metal	mg/kg	1.0	<1.2	<1.1	0.75J	0.95J
Silver	CLP-Metal	mg/kg	2.0	<2.3	<2.2	<2.4	<2.1
Sodium	CLP-Metal	mg/kg	1000	304J	425J	1,020J	1,160
Thallium	CLP-Metal	mg/kg	0.50	0.41J	<0.56	<0.60	0.38J
Vanadium	CLP-Metal	mg/kg	10.0	34.8	34.2	51.3	37.4
Zinc	CLP-Metal	mg/kg	4.0	100	51.9	132	87.0
Dilution Factor	M8015V			1	1	1	1
TPH: Gasoline	M8015V	mg/kg	0.5	<0.58	<0.56	<0.60	<0.52
Dilution Factor	M8015E			5	1	1	5
TPH: Diesel	M8015E	mg/kg	10	<58	<11	<12	<52
Dilution Factor	M8015E			5	1	1	5
MOTOR OIL	M8015E	mg/kg	10	450	170	98	350

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0009 98-03344-6	215-0010 98-03344-7	215-0012 98-03344-8	215-0013 98-03344-9
CLP: Semi-VOC by GC/MS							
Dilution Factor	CLP-SVOC			2	1	1	1
Acenaphthene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Acenaphthylene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	330J	< 370	< 390	< 340
Anthracene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	350J	< 370	< 390	< 340
Benzo(a)anthracene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	1,100	49J	150J	< 340
Benzo(a)pyrene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	1,200	55J	180J	< 340
Benzo(b)fluoranthene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	1,300	59J	210J	67J
Benzo(g,h,i)perylene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Benzo(k)fluoranthene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	440J	< 370	85J	< 340
Bis(2-chloroethoxy) methane	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Bis(2-chloroethyl) ether	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Bis(2-chloroisopropyl) ether	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Bis(2-ethylhexyl) phthalate	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	37J
4-Bromophenyl phenyl ether	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Butyl Benzyl Phthalate (BBP)	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Carbazole	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	97J	< 370	< 390	< 340
4-Chloro-3-methylphenol	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
4-Chloroaniline	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
2-Chloronaphthalene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
2-Chlorophenol	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
4-Chlorophenyl phenyl ether	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Chrysene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	890	52J	150J	< 340
Di-n-butyl phthalate (DBP)	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Di-n-octyl phthalate (DOP)	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Dibenzo(a,h)anthracene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	110J	< 370	< 390	< 340
Dibenzofuran	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
1,2-Dichlorobenzene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
1,3-Dichlorobenzene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
1,4-Dichlorobenzene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
3,3'-Dichlorobenzidine	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
2,4-Dichlorophenol	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Diethyl phthalate (DEP)	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	62J	< 390	< 340
Dimethyl phthalate (DMP)	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
2,4-Dimethylphenol	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
4,6-Dinitro-2-methylphenol	CLP-SVOC	$\mu\text{g}/\text{kg}$	830	< 1900	< 930	< 990	< 860
2,4-Dinitrophenol	CLP-SVOC	$\mu\text{g}/\text{kg}$	830	< 1900	< 930	< 990	< 860
2,4-Dinitrotoluene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
2,6-Dinitrotoluene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Fluoranthene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	1,700	60J	170J	< 340
Fluorene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	120J	< 370	< 390	< 340
Hexachlorobenzene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Hexachlorobutadiene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Hexachlorocyclopentadiene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Hexachloroethane	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
Indeno(1,2,3-cd)pyrene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	270J	< 370	41J	< 340
Isophorone	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340
2-Methylnaphthalene	CLP-SVOC	$\mu\text{g}/\text{kg}$	330	< 760	< 370	< 390	< 340

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result			
				215-0009 98-03344-6	215-0010 98-03344-7	215-0012 98-03344-8	215-0013 98-03344-9
2-Methylphenol (o-Cresol)	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
4-Methylphenol (p-Cresol)	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
Naphthalene	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
2-Nitroaniline	CLP-SVOC	µg/kg	830	< 1900	< 930	< 990	< 860
3-Nitroaniline	CLP-SVOC	µg/kg	830	< 1900	< 930	< 990	< 860
4-Nitroaniline	CLP-SVOC	µg/kg	830	< 1900	< 930	< 990	< 860
Nitrobenzene	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
2-Nitrophenol	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
4-Nitrophenol	CLP-SVOC	µg/kg	830	< 1900	< 930	< 990	< 860
N-Nitroso-di-n-propylamine	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
N-Nitrosodiphenylamine	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
Pentachlorophenol (PCP)	CLP-SVOC	µg/kg	830	< 1900	< 930	< 990	< 860
Phenanthrene	CLP-SVOC	µg/kg	330	1,100	< 370	74J	< 340
Phenol	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
Pyrene	CLP-SVOC	µg/kg	330	1,800	62J	190J	< 340
1,2,4-Trichlorobenzene	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
2,4,5-Trichlorophenol	CLP-SVOC	µg/kg	830	< 1900	< 930	< 990	< 860
2,4,6-Trichlorophenol	CLP-SVOC	µg/kg	330	< 760	< 370	< 390	< 340
CLP: Organochlorine pesticides & PCB							
Dilution Factor	CLP-Pest			1	1	1	1
Aldrin	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	0.60J	< 1.8
beta-BHC	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	< 2.0	< 1.8
alpha-BHC	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	0.62J	< 1.8
delta-BHC	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	< 2.0	< 1.8
gamma-BHC (Lindane)	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	< 2.0	< 1.8
alpha-Chlordane	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	< 2.0	< 1.8
gamma-Chlordane	CLP-Pest	µg/kg	1.7	2.0J	< 1.9	< 2.0	< 1.8
4,4'-DDD	CLP-Pest	µg/kg	3.3	10	< 3.7	< 3.9	< 3.4
4,4'-DDE	CLP-Pest	µg/kg	3.3	2.6J	< 3.7	< 3.9	< 3.4
4,4'-DDT	CLP-Pest	µg/kg	3.3	18	< 3.7	< 3.9	< 3.4
Dieldrin	CLP-Pest	µg/kg	3.3	13	< 3.7	2.6J	< 3.4
Endosulfan I	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	< 2.0	< 1.8
Endosulfan II	CLP-Pest	µg/kg	3.3	< 3.8	< 3.7	< 3.9	< 3.4
Endosulfan sulfate	CLP-Pest	µg/kg	3.3	< 3.8	< 3.7	< 3.9	< 3.4
Endrin	CLP-Pest	µg/kg	3.3	2.8J	< 3.7	< 3.9	< 3.4
Endrin aldehyde	CLP-Pest	µg/kg	3.3	< 3.8	< 3.7	< 3.9	< 3.4
Endrin ketone	CLP-Pest	µg/kg	3.3	11	< 3.7	< 3.9	< 3.4
Heptachlor	CLP-Pest	µg/kg	1.7	< 2.0	< 1.9	< 2.0	< 1.8
Heptachlor epoxide	CLP-Pest	µg/kg	1.7	5.3	< 1.9	1.1J	< 1.8
Methoxychlor	CLP-Pest	µg/kg	17	42	< 19	< 20	< 18
Toxaphene	CLP-Pest	µg/kg	170	< 200	< 190	< 200	< 180
Aroclor-1016 (PCB-1016)	CLP-Pest	µg/kg	33	< 38	< 37	< 39	< 34
Aroclor-1221 (PCB-1221)	CLP-Pest	µg/kg	67	< 77	< 75	< 80	< 70
Aroclor-1232 (PCB-1232)	CLP-Pest	µg/kg	33	< 38	< 37	< 39	< 34
Aroclor-1242 (PCB-1242)	CLP-Pest	µg/kg	33	< 38	< 37	< 39	< 34
Aroclor-1248 (PCB-1248)	CLP-Pest	µg/kg	33	< 38	< 37	< 39	< 34
Aroclor-1254 (PCB-1254)	CLP-Pest	µg/kg	33	< 38	< 37	< 39	< 34
Aroclor-1260 (PCB-1260)	CLP-Pest	µg/kg	33	< 38	< 37	< 39	< 34

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APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result		
				215-0014 98-03344-10	215-0015 98-03344-11	215-0021 98-03344-12
Percent Moisture	ASTM-D2216	W%	0.5	14.1	11.4	13.9
pH	9040	pH unit	0.1	7.22	7.39	7.55
CLP Metals-Routine						
Aluminum	CLP-Metal	mg/kg	12.5	12,800	8,620	16,700
Antimony	CLP-Metal	mg/kg	1.2	1.3J	1.2J	1.1J
Arsenic	CLP-Metal	mg/kg	2.0	7.5	4.4	8.3
Barium	CLP-Metal	mg/kg	40.0	205	106	517
Beryllium	CLP-Metal	mg/kg	1.0	0.43J	0.13J	0.49J
Cadmium	CLP-Metal	mg/kg	1.0	0.28J	< 1.1	0.61J
Calcium	CLP-Metal	mg/kg	1000	6,710	4,590	6,510
Chromium	CLP-Metal	mg/kg	2.0	87.2	85.4	56.2
Cobalt	CLP-Metal	mg/kg	10.0	13.9	6.2J	17.8
Copper	CLP-Metal	mg/kg	5.0	55.9	35.6	51.2
Iron	CLP-Metal	mg/kg	20.0	26,500	16,200	27,700
Lead	CLP-Metal	mg/kg	0.60	83.3	45.0	42.9
Magnesium	CLP-Metal	mg/kg	1000	8,010	4,830	9,510
Manganese	CLP-Metal	mg/kg	3.0	609	121	1,700
Mercury	CLP-Metal	mg/kg	0.10	0.18	0.076J	0.12J
Molybdenum	CLP-Metal	mg/kg	1.3	0.19J	0.42J	< 1.5
Nickel	CLP-Metal	mg/kg	8.0	95.2	44.2	113
Potassium	CLP-Metal	mg/kg	1000	1,200	897J	2,030
Selenium	CLP-Metal	mg/kg	1.0	1.3	< 1.1	0.99J
Silver	CLP-Metal	mg/kg	2.0	< 2.3	< 2.3	< 2.3
Sodium	CLP-Metal	mg/kg	1000	253J	119J	477J
Thallium	CLP-Metal	mg/kg	0.50	0.41J	< 0.56	1.7
Vanadium	CLP-Metal	mg/kg	10.0	43.9	32.8	39.4
Zinc	CLP-Metal	mg/kg	4.0	116	56.1	111
Dilution Factor	M8015V			1	1	1
TPH: Gasoline	M8015V	mg/kg	0.5	< 0.58	< 0.56	< 0.58
Dilution Factor	M8015E			1	1	1
TPH: Diesel	M8015E	mg/kg	10	< 12	< 11	< 12
Dilution Factor	M8015E			1	1	1
MOTOR OIL	M8015E	mg/kg	10	180	83	79

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result		
				215-0014 98-03344-10	215-0015 98-03344-11	215-0021 98-03344-12
CLP: Semi-VOC by GC/MS						
Dilution Factor	CLP-SVOC			1	1	1
Acenaphthene	CLP-SVOC	µg/kg	330	<380	<370	<380
Acenaphthylene	CLP-SVOC	µg/kg	330	<380	<370	85J
Anthracene	CLP-SVOC	µg/kg	330	<380	<370	170J
Benzo(a)anthracene	CLP-SVOC	µg/kg	330	40J	<370	360J
Benzo(a)pyrene	CLP-SVOC	µg/kg	330	59J	<370	310J
Benzo(b)fluoranthene	CLP-SVOC	µg/kg	330	72J	<370	310J
Benzo(g,h,i)perylene	CLP-SVOC	µg/kg	330	<380	<370	89J
Benzo(k)fluoranthene	CLP-SVOC	µg/kg	330	<380	<370	130J
Bis(2-chloroethoxy) methane	CLP-SVOC	µg/kg	330	<380	<370	<380
Bis(2-chloroethyl) ether	CLP-SVOC	µg/kg	330	<380	<370	<380
Bis(2-chloroisopropyl) ether	CLP-SVOC	µg/kg	330	<380	<370	<380
Bis(2-ethylhexyl) phthalate	CLP-SVOC	µg/kg	330	<380	<370	<380
4-Bromophenyl phenyl ether	CLP-SVOC	µg/kg	330	<380	<370	<380
Butyl Benzyl Phthalate (BBP)	CLP-SVOC	µg/kg	330	<380	<370	<380
Carbazole	CLP-SVOC	µg/kg	330	<380	<370	<380
4-Chloro-3-methylphenol	CLP-SVOC	µg/kg	330	<380	<370	<380
4-Chloroaniline	CLP-SVOC	µg/kg	330	<380	<370	<380
2-Chloronaphthalene	CLP-SVOC	µg/kg	330	<380	<370	<380
2-Chlorophenol	CLP-SVOC	µg/kg	330	<380	<370	<380
4-Chlorophenyl phenyl ether	CLP-SVOC	µg/kg	330	<380	<370	<380
Chrysene	CLP-SVOC	µg/kg	330	40J	<370	320J
Di-n-butyl phthalate (DBP)	CLP-SVOC	µg/kg	330	<380	<370	<380
Di-n-octyl phthalate (DOP)	CLP-SVOC	µg/kg	330	<380	<370	<380
Dibenzo(a,b)anthracene	CLP-SVOC	µg/kg	330	<380	<370	<380
Dibenzofuran	CLP-SVOC	µg/kg	330	<380	<370	<380
1,2-Dichlorobenzene	CLP-SVOC	µg/kg	330	<380	<370	<380
1,3-Dichlorobenzene	CLP-SVOC	µg/kg	330	<380	<370	<380
1,4-Dichlorobenzene	CLP-SVOC	µg/kg	330	<380	<370	<380
3,3'-Dichlorobenzidine	CLP-SVOC	µg/kg	330	<380	<370	<380
2,4-Dichlorophenol	CLP-SVOC	µg/kg	330	<380	<370	<380
Diethyl phthalate (DEP)	CLP-SVOC	µg/kg	330	<380	<370	<380
Dimethyl phthalate (DMP)	CLP-SVOC	µg/kg	330	<380	<370	<380
2,4-Dimethylphenol	CLP-SVOC	µg/kg	330	<380	<370	<380
4,6-Dinitro-2-methylphenol	CLP-SVOC	µg/kg	830	<970	<940	<960
2,4-Dinitrophenol	CLP-SVOC	µg/kg	830	<970	<940	<960
2,4-Dinitrotoluene	CLP-SVOC	µg/kg	330	<380	<370	<380
2,6-Dinitrotoluene	CLP-SVOC	µg/kg	330	<380	<370	<380
Fluoranthene	CLP-SVOC	µg/kg	330	50J	<370	610
Fluorene	CLP-SVOC	µg/kg	330	<380	<370	<380
Hexachlorobenzene	CLP-SVOC	µg/kg	330	<380	<370	<380
Hexachlorobutadiene	CLP-SVOC	µg/kg	330	<380	<370	<380
Hexachlorocyclopentadiene	CLP-SVOC	µg/kg	330	<380	<370	<380
Hexachloroethane	CLP-SVOC	µg/kg	330	<380	<370	<380
Indeno(1,2,3-cd)pyrene	CLP-SVOC	µg/kg	330	<380	<370	96J
Isophorone	CLP-SVOC	µg/kg	330	<380	<370	<380
2-Methylnaphthalene	CLP-SVOC	µg/kg	330	<380	<370	<380

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL (PQL)	Analysis Result		
				215-0014 98-03344-10	215-0015 98-03344-11	215-0021 98-03344-12
2-Methylphenol (o-Cresol)	CLP-SVOC	µg/kg	330	<380	<370	<380
4-Methylphenol (p-Cresol)	CLP-SVOC	µg/kg	330	<380	<370	<380
Naphthalene	CLP-SVOC	µg/kg	330	<380	<370	<380
2-Nitroaniline	CLP-SVOC	µg/kg	830	<970	<940	<960
3-Nitroaniline	CLP-SVOC	µg/kg	830	<970	<940	<960
4-Nitroaniline	CLP-SVOC	µg/kg	830	<970	<940	<960
Nitrobenzene	CLP-SVOC	µg/kg	330	<380	<370	<380
2-Nitrophenol	CLP-SVOC	µg/kg	330	<380	<370	<380
4-Nitrophenol	CLP-SVOC	µg/kg	830	<970	<940	<960
N-Nitroso-di-n-propylamine	CLP-SVOC	µg/kg	330	<380	<370	<380
N-Nitrosodiphenylamine	CLP-SVOC	µg/kg	330	<380	<370	<380
Pentachlorophenol (PCP)	CLP-SVOC	µg/kg	830	<970	<940	<960
Phenanthrene	CLP-SVOC	µg/kg	330	<380	<370	65J
Phenol	CLP-SVOC	µg/kg	330	<380	<370	<380
Pyrene	CLP-SVOC	µg/kg	330	60J	<370	600
1,2,4-Trichlorobenzene	CLP-SVOC	µg/kg	330	<380	<370	<380
2,4,5-Trichlorophenol	CLP-SVOC	µg/kg	830	<970	<940	<960
2,4,6-Trichlorophenol	CLP-SVOC	µg/kg	330	<380	<370	<380
CLP: Organochlorine pesticides & PCB						
Dilution Factor	CLP-Pest			1	1	1
Aldrin	CLP-Pest	µg/kg	1.7	<2.0	<1.9	1.3J
beta-BHC	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
alpha-BHC	CLP-Pest	µg/kg	1.7	<2.0	<1.9	1.2J
delta-BHC	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
gamma-BHC (Lindane)	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
alpha-Chlordane	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
gamma-Chlordane	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
4,4'-DDD	CLP-Pest	µg/kg	3.3	<3.8	4.0	3.0J
4,4'-DDE	CLP-Pest	µg/kg	3.3	<3.8	<3.7	<3.8
4,4'-DDT	CLP-Pest	µg/kg	3.3	<3.8	5.0	2.7J
Dieldrin	CLP-Pest	µg/kg	3.3	<3.8	<3.7	<3.8
Endosulfan I	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
Endosulfan II	CLP-Pest	µg/kg	3.3	<3.8	<3.7	<3.8
Endosulfan sulfate	CLP-Pest	µg/kg	3.3	<3.8	<3.7	<3.8
Endrin	CLP-Pest	µg/kg	3.3	<3.8	<3.7	1.9J
Endrin aldehyde	CLP-Pest	µg/kg	3.3	<3.8	<3.7	<3.8
Endrin ketone	CLP-Pest	µg/kg	3.3	<3.8	<3.7	<3.8
Heptachlor	CLP-Pest	µg/kg	1.7	<2.0	<1.9	<2.0
Heptachlor epoxide	CLP-Pest	µg/kg	1.7	<2.0	<1.9	2.0J
Methoxychlor	CLP-Pest	µg/kg	17	<20	<19	20J
Toxaphene	CLP-Pest	µg/kg	170	<200	<190	<200
Aroclor-1016 (PCB-1016)	CLP-Pest	µg/kg	33	<38	<37	<38
Aroclor-1221 (PCB-1221)	CLP-Pest	µg/kg	67	<78	<76	<78
Aroclor-1232 (PCB-1232)	CLP-Pest	µg/kg	33	<38	<37	<38
Aroclor-1242 (PCB-1242)	CLP-Pest	µg/kg	33	<38	<37	<38
Aroclor-1248 (PCB-1248)	CLP-Pest	µg/kg	33	<38	<37	<38
Aroclor-1254 (PCB-1254)	CLP-Pest	µg/kg	33	<38	<37	<38
Aroclor-1260 (PCB-1260)	CLP-Pest	µg/kg	33	<38	<37	<38

Applied P & Ch Laboratory

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APCL Analytical Report

Component Analyzed	Method	Unit	Analysis Result	
			215-0004	215-0007
			98-03344-2	98-03344-4
CLP: VOC by GC/MS				
Dilution Factor	CLP-VOC		1	1
Acetone	CLP-VOC	µg/kg	10	<11
Benzene	CLP-VOC	µg/kg	10	<11
Bromodichloromethane	CLP-VOC	µg/kg	10	<11
Bromoform	CLP-VOC	µg/kg	10	<11
Bromomethane	CLP-VOC	µg/kg	10	<11
2-Butanone (MEK)	CLP-VOC	µg/kg	10	<11
Carbon disulfide	CLP-VOC	µg/kg	10	<11
Carbon tetrachloride	CLP-VOC	µg/kg	10	<11
Chlorobenzene	CLP-VOC	µg/kg	10	<11
Chlorodibromomethane	CLP-VOC	µg/kg	10	<11
Chloroethane	CLP-VOC	µg/kg	10	<11
Chloroform	CLP-VOC	µg/kg	10	<11
Chloromethane	CLP-VOC	µg/kg	10	<11
1,1-Dichloroethane	CLP-VOC	µg/kg	10	<11
1,2-Dichloroethane	CLP-VOC	µg/kg	10	<11
1,1-Dichloroethene	CLP-VOC	µg/kg	10	<11
1,2-Dichloroethene (total)	CLP-VOC	µg/kg	10	<11
1,2-Dichloropropane	CLP-VOC	µg/kg	10	<11
cis-1,3-Dichloropropene	CLP-VOC	µg/kg	10	<11
trans-1,3-Dichloropropene	CLP-VOC	µg/kg	10	<11
Ethylbenzene	CLP-VOC	µg/kg	10	<11
2-Hexanone	CLP-VOC	µg/kg	10	<11
4-Methyl-2-pentanone (MIBK)	CLP-VOC	µg/kg	10	<11
Methylene chloride	CLP-VOC	µg/kg	10	<11
Styrene	CLP-VOC	µg/kg	10	<11
1,1,2,2-Tetrachloroethane	CLP-VOC	µg/kg	10	<11
Tetrachloroethene	CLP-VOC	µg/kg	10	<11
Toluene	CLP-VOC	µg/kg	10	<11
1,1,1-Trichloroethane	CLP-VOC	µg/kg	10	<11
1,1,2-Trichloroethane	CLP-VOC	µg/kg	10	<11
Trichloroethene	CLP-VOC	µg/kg	10	<11
Vinyl chloride	CLP-VOC	µg/kg	10	<11
Xylenes (total)	CLP-VOC	µg/kg	10	<11

APCL Analytical Report

Component Analyzed	Method	Unit	CRDL	Analysis Result		
				215-0010 98-03344-7	215-0013 98-03344-9	215-0015 98-03344-11
CLP: VOC by GC/MS						
Dilution Factor	CLP-VOC		1	1	1	
Acetone	CLP-VOC	µg/kg	10	<11	<10	<11
Benzene	CLP-VOC	µg/kg	10	<11	<10	<11
Bromodichloromethane	CLP-VOC	µg/kg	10	<11	<10	<11
Bromoform	CLP-VOC	µg/kg	10	<11	<10	<11
Bromomethane	CLP-VOC	µg/kg	10	<11	<10	<11
2-Butanone (MEK)	CLP-VOC	µg/kg	10	<11	<10	<11
Carbon disulfide	CLP-VOC	µg/kg	10	<11	<10	<11
Carbon tetrachloride	CLP-VOC	µg/kg	10	<11	<10	<11
Chlorobenzene	CLP-VOC	µg/kg	10	<11	<10	<11
Chlorodibromomethane	CLP-VOC	µg/kg	10	<11	<10	<11
Chloroethane	CLP-VOC	µg/kg	10	<11	<10	<11
Chloroform	CLP-VOC	µg/kg	10	<11	<10	<11
Chloromethane	CLP-VOC	µg/kg	10	<11	<10	<11
1,1-Dichloroethane	CLP-VOC	µg/kg	10	<11	<10	<11
1,2-Dichloroethane	CLP-VOC	µg/kg	10	<11	<10	<11
1,1-Dichloroethene	CLP-VOC	µg/kg	10	<11	<10	<11
1,2-Dichloroethene (total)	CLP-VOC	µg/kg	10	<11	<10	<11
1,2-Dichloropropane	CLP-VOC	µg/kg	10	<11	<10	<11
cis-1,3-Dichloropropene	CLP-VOC	µg/kg	10	<11	<10	<11
trans-1,3-Dichloropropene	CLP-VOC	µg/kg	10	<11	<10	<11
Ethylbenzene	CLP-VOC	µg/kg	10	<11	<10	<11
2-Hexanone	CLP-VOC	µg/kg	10	<11	<10	<11
4-Methyl-2-pentanone (MIBK)	CLP-VOC	µg/kg	10	<11	<10	<11
Methylene chloride	CLP-VOC	µg/kg	10	<11	<10	<11
Styrene	CLP-VOC	µg/kg	10	<11	<10	<11
1,1,2,2-Tetrachloroethane	CLP-VOC	µg/kg	10	<11	<10	<11
Tetrachloroethene	CLP-VOC	µg/kg	10	<11	<10	<11
Toluene	CLP-VOC	µg/kg	10	<11	<10	<11
1,1,1-Trichloroethane	CLP-VOC	µg/kg	10	<11	<10	<11
1,1,2-Trichloroethane	CLP-VOC	µg/kg	10	<11	<10	<11
Trichloroethene	CLP-VOC	µg/kg	10	<11	<10	<11
Vinyl chloride	CLP-VOC	µg/kg	10	<11	<10	<11
Xylenes (total)	CLP-VOC	µg/kg	10	<11	<10	<11

PQL: Practical Quantitation Limit.

MDL: Method Detection Limit.

CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit.

"-": Analysis is not required.

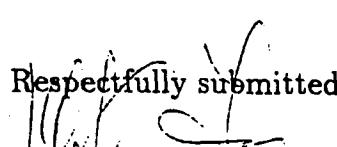
J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

(a) Presence of PCB may cause false positives in pesticides chromatogram.

Respectfully submitted,


 Dominic Lau
 Laboratory Director
 Applied P & Ch Laboratory

APPENDIX B

SUMMARY OF DATA ~~QUALITIES~~
QUALIFIERS

Analytical Qualifiers for Quanterra Labs

Inorganics:

- U - Analyzed for but not detected (Reported value is detection limit).
- E - The reported value is estimated because of the presence of interference.
- M - Duplicate injection precision not met.
- N - Spiked sample recovery not within control limits.
- S - The reported value was determined by the Method of Standard Additions (MAS).
- W - Post Digestion spike for Furnace AA analysis is out of control limits (58-115%).
- * - Duplicate analysis not within control limits.
- + - Correlation coefficient for the MAS is less than 0.995.
- B - Value is greater than Instrument Detection Limit (IDL) but less than Contract Required Detection Limit (CRDL).

Organic:

- U - Analyzed for but not detected (Reported value is detection limit).
- D - Compounds identified in an analysis at a secondary dilution factor.
- J - Estimated value (Target compound - <DL or TIC ID -a 1:1 response is assumed for quantitation.
- B - Analyte found in the associated blank as well as in the sample.
- E - Compound concentration exceeds the GC/MS calibration range.
- Z - Single pattern does not match calibration fuel pattern.
- Y - Fuel pattern does not fall within 90% of fuel calibration range.
- P - (For pesticides) Original & second column had high relative percent difference (RPD), use lower value.
- NJ - Presumptive evidence of the presence of the material at an estimated quantity.
- R - The result is unusable.

Numbers in the columns after the Validation Code represent reasons (identified in the legend) for the Validation Code. The meaning of specific validation codes are identified in the following legend.

select reason_code, reason_desc from valid_reason;

REA_REASON_DESC

-
- 001 Exceeded holding time.
 - 002 Blank was not analyzed after the run.
 - 003 Blank contamination.
 - 004 Tracer contamination.
 - 005 Value > IDL were found in associated blank.
 - 006 Positive/negative bias found in associated blank.
 - 007 Negative bias in the initial/continuing calibration and prep blanks.
 - 008 An associated trip blank was not analyzed.
 - 009 An associated Field blank was not analyzed.
 - 010 Associated field replicates were not analyzed.
 - 011 Insufficient aliquot.
 - 012 Primary standard had exceeded the expiration date.
 - 013 No raw data available.
 - 014 Baseline drift in the sample run.
 - 015 Spike recovery was outside control limits.
 - 016 Recovery criteria were not met.
 - 017 Verification criteria were not met.
 - 018 Element interference.
 - 019 Pre-digestion/post-digestion matrix spike recovery criteria not met.
 - 020 ICP serial dilution recovery was not met.
 - 021 Poor matrix spike recovery.
 - 022 Low CRI standard recovery.
 - 023 CRDL check sample recovery was outside control limits.
 - 024 Value were above the standard calibration range.
 - 025 Value < 5 times contamination in continuing calibration/method blank.
 - 026 Percent recovery below criteria in matrix spike/interference blank.
 - 027 Percent recovery below criteria in matrix spike/interference blank.
 - 028 Lab control sample percent recovery below 50 percent.
 - 029 EPA control windows exceeded.
 - 030 Value < negative contamination in the continuing calibration blank.
 - 031 Value < zero.
 - 032 Calibration verification did not meet criteria.
 - 033 CRDL check sample recovery/ICP serial dilution outside control limits.
 - 034 Soluble value grossly exceeds the total value.
 - 035 Duplicate precision analyses were outside control limits.
 - 036 Two times the CRDL standard recovery was low for the element.
 - 037 Poor duplicate precision.
 - 038 No matrix spike analyses.
 - 039 No duplicate analysis.
 - 040 Value exceeded linear range of instrument and was not re-analyzed.
 - 041 Matrix effects may exist.
 - 042 Matrix spike recovery was zero percent.
 - 043 Serial dilution %D was outside control limits.

select reason_code, reason_desc from valid_reason;

REA_REASON_DESC

- 044 Lab control samples fall outside 3-sigma.
- 045 One of two lab control samples is outside 3-sigma, but within 2-sigma.
- 046 Efficiency spectra shows drop.
- 047 One reagent blank exceeded the MDA.
- 048 Low or poor chemical recovery.
- 049 MDA exceeded the RDL.
- 050 LLD exceeded the RDL.
- 051 Spectrum contained unknown spike.
- 052 Precision of the repeat count of the QC standard was > 2-sigma.
- 053 tSIE of QC was not within 5% of tSIE used to determine efficiency.
- 054 Lab SOP was not followed for analysis.
- 055 Inadequate standard counting times.
- 056 Instrument was not normalized.
- 057 Sample exceeded the weight limit of the efficiency curve.
- 058 Excessive solids on planchet.
- 059 Both QC samples outside 2-sigma.
- 060 Self-absorption curve was exceeded.
- 061 Unknown spike volume.
- 062 Associated continuing calibration showed elevated %D for compound.
- 063 Associated initial calibration showed elevated %RSD for compound.
- 064 Retention time exceeded 30 sec. criteria for the internal standard.
- 065 Surrogate recovery was outside CLP limits.
- 066 Compounds/components coelute.
- 067 Correlation coefficient < 0.995.
- 068 Average relative response factor < 0.05.
- 069 Relative response factor < 0.05.
- 070 Retention time of DDT < than 12 minutes.
- 071 DDT breakdown > 20 percent.
- 072 Endrin breakdown > 20 percent.
- 073 Retention time of DBC > 2.0 percent for packed column.
- 074 Retention time of DBC > 0.3 percent for narrow-bore capillary column.
- 075 Retention time of DBC > 1.5 percent for wide-bore capillary column.
- 076 Percent RSD exceeded 10%.
- 077 Pesticide standard calibration factor exceeded 15%, quant. column.
- 078 Pesticide standard calibration factor exceeded 15%, conf. column.
- 079 ICS recovery is outside CLP criteria.
- 099 See hardcopy for more details.
- 100 Peak pattern for diesel fuel does not match.
- 101 Peak pattern for gasoline does not match.
- 102 Data entry error (correction from raw data) or improper data flag.
- 103 Analyte not confirmed during second column analysis.
- 104 Analyte conc. < method quantitation, no second column confirmation.
- 105 Lab Control sample recovery was above the control limits.

select reason_code, reason_desc from valid_reason;

REA REASON_DESC

-
- 106 Lab Control sample recovery was below the control limits.
 - 107 No associated LCS sample.

- 108 No associated ICS sample.
- 109 Sample was not spiked with surrogate.
- 110 The area of the internal standard exceeded the criteria.
- 111 Second column confirmation not performed.
- 112 The reported value is from the dilution run.
- 113 Mass spectra do not match reference spectra.
- 114 Tentatively identified compound (TIC).
- 115 Percent recovery was outside the criteria for GPC calibration.
- 116 Value was 10 x the contamination in the calibration/method blank.
- 117 CCV percent > 25%.
- 118 MSA spike levels incorrect.
- 119 MDL < analyte concentration < CRQL (inorganics).
- 120 %D between columns > 20, lower value reported presumptively present.
- 121 Retention time is outside the window.
- 999 See hard copy for details.
- 122 The result of the analyte was nondetect on confirmation.
- 123 The RPD exceeded the criteria between the initial and confirmation.
- 124 Headspace or bubbles in VOA vial.
- 125 Lab control sample recovery is outside the criteria.
- 126 Peak pattern for motor oil fuel does not match.
- 127 Field duplicate precision above 50 percent.
- 128 Reporting limit was raised due to matrix interference.

APPENDIX C

HUMAN HEALTH RISK-BASED TIER SCREENING ANALYSIS

- APPENDIX C-1** Table C-1, Tier 1 Screening Analysis Risk Calculation, ZONE 24 Parcel 215
- APPENDIX C-2** Table C-2, Tier 1 Screening Analysis Data Summary, Zone 24 Parcel 215
- APPENDIX C-3** Table 3 Through 20 NAS Alameda Parcel 215 Finding of Suitability to Transfer (FOST), Tier 2 Soil Screening Evaluation & Toxicology Profiles of Chemicals of Potential Concern

APPENDIX C-1

**TABLE C-1, TIER 1 SCREENING ANALYSIS RISK CALCULATION,
ZONE 24 PARCEL 215**

TABLE C-1
Tier 1 Screening Analysis Risk Calculation
Zone 24 - Parcel 215

CAS No.	CONTAMINANT	RESIDENTIAL SOIL						RESIDENTIAL WATER					
		DETECTION STATISTICS		Cancer Risk integrated	Chronic integrated	RISK AND HAZARD CALCULATION		DETECTION STATISTICS		TAP WATER		RISK AND HAZARD CALCULATION	
		SOIL UCL 95	Units	= 1E-06 (mg/kg)	HQ = 1 (mg/kg)	Cancer Risk	Hazard Index	WATER UCL 95	Units	= 1E-06 (ug/l)	HQ = 1 (ug/l)	Risk Cancer	Hazard Index
71-55-6	1,1,1-Trichloroethane		ug/kg	na	6.8E+02	0.00E+00	0.00E+00	3.00	ug/l	na	7.9E+02	0.00E+00	3.79E-03
120-82-1	1,2,4-Trichlorobenzene	1100	ug/kg	na	4.8E+02	0.00E+00	2.29E-03		ug/l	na	1.9E+02	0.00E+00	0.00E+00
106-46-7	1,4-Dichlorobenzene	1300	ug/kg	3.0E+00	3.3E+03	4.33E-07	3.94E-04		ug/l	4.7E-01	1.4E+03	0.00E+00	0.00E+00
95-57-8	2-Chlorophenol	1100	ug/kg	na	5.9E+01	0.00E+00	1.86E-02		ug/l	na	3.8E+01	0.00E+00	0.00E+00
91-57-6	2-Methylnaphthalene		ug/kg	na	na	0.00E+00	0.00E+00	3.00	ug/l	na	na	0.00E+00	0.00E+00
72-54-8	4,4'-DDD	8.25	ug/kg	2.4E+00	na	3.44E-09	0.00E+00	0.060	ug/l	2.8E-01	na	2.14E-07	0.00E+00
72-55-9	4,4'-DDE	4.14	ug/kg	1.7E+00	na	2.44E-09	0.00E+00	0.063	ug/l	2.0E-01	na	3.19E-07	0.00E+00
50-29-3	4,4'-DDT	78.12	ug/kg	1.7E+00	3.5E+01	4.60E-08	2.23E-03	0.62	ug/l	2.0E-01	1.8E+01	3.14E-06	3.40E-02
83-32-9	Acenaphthene	1342	ug/kg	na	2.6E+03	0.00E+00	5.16E-04		ug/l	na	3.7E+02	0.00E+00	0.00E+00
2008-96-8	Acenaphthylene	330	ug/kg	na	na	0.00E+00	0.00E+00		ug/l	na	na	0.00E+00	0.00E+00
67-64-1	Acetone		ug/kg	na	1.4E+03	0.00E+00	0.00E+00	23.0	ug/l	na	6.1E+02	0.00E+00	3.78E-02
309-00-2	Aldrin	5.50	ug/kg	2.6E-02	1.6E+00	2.10E-07	3.44E-03	0.099	ug/l	4.0E-03	1.1E+00	2.50E-05	9.04E-02
5103-71-9	Alpha - Chlordane	0.99	ug/kg	1.6E+00	3.3E+01	6.19E-10	3.00E-05		ug/l	1.9E-01	1.8E+01	0.00E+00	0.00E+00
7429-90-5	Aluminum	12589	mg/kg	na	7.5E+04	0.00E+00	1.68E-01	158	ug/l	na	3.7E+04	0.00E+00	4.33E-03
120-12-7	Anthracene	350	ug/kg	na	1.4E+04	0.00E+00	2.50E-05		ug/l	na	1.8E+03	0.00E+00	0.00E+00
7440-36-0	Antimony and compounds	6.22	mg/kg	na	3.0E+01	0.00E+00	2.07E-01	40.0	ug/l	na	1.5E+01	0.00E+00	2.74E+00
12674-11-2	Aroclor 1016- (PCB cancer endpt)	30.55	ug/kg	2.0E-01	3.4E+00	1.53E-07	8.99E-03		ug/l	3.4E-02	2.6E+00	0.00E+00	0.00E+00
11096-82-5	Aroclor 1260 (PCB default)	104.9	ug/kg	2.0E-01	na	5.25E-07	0.00E+00	1.00	ug/l	3.4E-02	na	2.94E-05	0.00E+00
7440-38-2	Arsenic	9.14	mg/kg	3.8E-01	2.1E+01	2.43E-05	4.35E-01	80.40	ug/l	4.5E-02	1.1E+01	1.79E-03	7.34E+00
7440-39-3	Barium and compounds	264.6	mg/kg	na	5.2E+03	0.00E+00	5.09E-02	843	ug/l	na	2.6E+03	0.00E+00	3.30E-01
56-55-3	Benzo[a]anthracene	1200	ug/kg	5.6E-01	na	2.14E-06	0.00E+00		ug/l	9.2E-02	na	0.00E+00	0.00E+00
50-32-8	Benzo[a]pyrene - CAL Mod	1200	ug/kg	5.6E-02	na	2.14E-05	0.00E+00		ug/l	na	1.5E-03	0.00E+00	0.00E+00
205-99-2	Benzo[b]fluoranthene	1800	ug/kg	5.6E-01	na	3.21E-06	0.00E+00		ug/l	9.2E-02	na	0.00E+00	0.00E+00
191-24-2	Benzo(g,h,i)perylene	300	ug/kg	na	na	0.00E+00	0.00E+00		ug/l	na	na	0.00E+00	0.00E+00
207-08-9	Benzo(k)fluoranthene - CAL Mod	440	ug/kg	6.1E-01	na	7.21E-07	0.00E+00		ug/l	9.2E-01	na	0.00E+00	0.00E+00
7440-41-7	Beryllium and compounds	0.29	mg/kg	na	1.5E+02	0.00E+00	1.93E-03		ug/l	na	7.3E+01	0.00E+00	0.00E+00
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	95.0	ug/kg	3.2E+01	1.1E+03	2.99E-09	8.64E-05	2.00	ug/l	4.8E+00	7.3E+02	4.16E-07	2.74E-03
7440-43-9	Cadmium and cpdx (cal-mod)	0.30	mg/kg	1.4E+03	3.7E+01	2.14E-10	8.11E-03	1.60	ug/l	na	1.8E+01	0.00E+00	8.77E-02
86-74-8	Carbazole	97.0	ug/kg	2.2E+01	na	4.37E-09	0.00E+00		ug/l	3.4E+00	na	0.00E+00	0.00E+00
7440-47-3	Chromium (1/6 ratio Cr VI/CR III)	264.8	mg/kg	2.1E+02	na	1.26E-06	0.00E+00	57.0	ug/l	na	na	0.00E+00	0.00E+00
218-01-9	Chrysene - CAL Mod	1100	ug/kg	6.1E+00	na	1.80E-07	0.00E+00		ug/l	9.2E+00	na	0.00E+00	0.00E+00
7440-48-4	Cobalt	16.08	mg/kg	na	3.3E+03	0.00E+00	4.87E-03	16.40	ug/l	na	2.2E+03	0.00E+00	7.49E-03
7440-50-8	Copper and compounds	198.2	mg/kg	na	2.8E+03	0.00E+00	6.96E-02	406	ug/l	na	1.4E+03	0.00E+00	2.99E-01
53-70-3	Dibenz(a,h)anthracene	110	ug/kg	5.6E-02	na	1.96E-06	0.00E+00		ug/l	9.2E-03	na	0.00E+00	0.00E+00
84-74-2	Di(n)butyl phthalate		ug/kg	na	5.5E+03	0.00E+00	0.00E+00	7.00	ug/l	na	3.7E+03	0.00E+00	1.92E-03

TABLE C-1
Tier 1 Screening Analysis Risk Calculation
Zone 24 - Parcel 215

CAS No.	CONTAMINANT	RESIDENTIAL SOIL						RESIDENTIAL WATER					
		DETECTION STATISTICS		Cancer Risk integrated	Chronic integrated	RISK AND HAZARD CALCULATION		DETECTION STATISTICS		TAP WATER		RISK AND HAZARD CALCULATION	
		SOIL UCL 95	Units	= 1E-06 (mg/kg)	HQ = 1 (mg/kg)	Cancer Risk	Hazard Index	WATER UCL 95	Units	= 1E-06 (ug/l)	HQ = 1 (ug/l)	Risk Cancer	Hazard Index
60-57-1	Dieldrin	6.04	ug/kg	2.8E-02	2.7E+00	2.17E-07	2.24E-03			4.2E-03	1.8E+00	0.00E+00	0.00E+00
84-66-2	Diethyl phthalate	1100	ug/kg	na	4.4E+04	0.00E+00	2.50E-05			na	2.9E+04	0.00E+00	0.00E+00
959-98-8	Endosulfan I	1.30	ug/kg	na	3.3E+02	0.00E+00	3.93E-06			ug/l	2.2E+02	0.00E+00	0.00E+00
33213-65-9	Endosulfan II	2.04	ug/kg	na	3.3E+02	0.00E+00	6.16E-06			0.024 ug/l	na	2.2E+02	0.00E+00
72-20-8	Endrin	6.80	ug/kg	na	1.6E+01	0.00E+00	4.25E-04			0.22 ug/l	na	1.1E+01	0.00E+00
7421-93-4	Endrin Aldehyde	7.10	ug/kg	na	1.6E+01	0.00E+00	4.44E-04			ug/l	1.1E+01	0.00E+00	0.00E+00
53494-70-5	Endrin Ketone	7.06	ug/kg	na	1.6E+01	0.00E+00	4.41E-04			0.013 ug/l	na	1.1E+01	0.00E+00
206-44-0	Fluoranthene	1288	ug/kg	na	2.0E+03	0.00E+00	6.44E-04			ug/l	1.5E+03	0.00E+00	0.00E+00
86-73-7	Fluorene	120	ug/kg	na	1.8E+03	0.00E+00	6.67E-05			ug/l	2.4E+02	0.00E+00	0.00E+00
5103-74-2	Gamma-Chlordane	4.06	ug/kg	1.6E+00	3.3E+01	2.54E-09	1.23E-04			0.046 ug/l	1.9E-01	1.8E+01	2.42E-07
319-84-6	HCH (alpha)	0.62	ug/kg	8.6E-02	na	7.21E-09	0.00E+00			ug/l	1.1E-02	na	0.00E+00
76-44-8	Heptachlor	1.32	ug/kg	9.9E-02	2.7E+01	1.34E-08	4.89E-05			ug/l	1.5E-02	1.8E+01	0.00E+00
1024-57-3	Heptachlor epoxide	4.10	ug/kg	4.9E-02	7.1E-01	8.40E-08	5.77E-03			0.028 ug/l	7.4E-03	4.7E-01	3.79E-06
193-39-5	Indeno[1,2,3-cd]pyrene	310	ug/kg	5.6E-01	na	5.54E-07	0.00E+00			ug/l	9.2E-02	na	0.00E+00
7439-92-1	Lead - CAL Mod	249.4	mg/kg	na	1.3E+02	0.00E+00	1.92E+00			19.40 ug/l	na	4.0E+00	0.00E+00
7439-96-5	Manganese and compounds	856.9	mg/kg	na	3.1E+03	0.00E+00	2.75E-01			2260 ug/l	na	1.7E+03	0.00E+00
7487-94-7	Mercury and compounds	1.16	mg/kg	na	2.2E+01	0.00E+00	5.27E-02			0.46 ug/l	na	1.1E+01	0.00E+00
72-43-5	Methoxychlor	23.54	ug/kg	na	2.7E+02	0.00E+00	8.72E-05			ug/l	na	1.8E+02	0.00E+00
78-93-3	Methyl ethyl ketone		ug/kg	na	6.9E+03	0.00E+00	0.00E+00			2.00 ug/l	na	1.9E+03	0.00E+00
7439-98-7	Molybdenum	1.39	mg/kg	na	3.7E+02	0.00E+00	3.76E-03			68.0 ug/l	na	1.8E+02	0.00E+00
91-20-3	Naphthalene		ug/kg	na	5.5E+01	0.00E+00	0.00E+00			3.00 ug/l	na	6.2E+00	0.00E+00
7440-02-0	Nickel (soluble salts) - CAL Mod	250.8	mg/kg	na	1.5E+02	0.00E+00	1.67E+00			270 ug/l	na	7.3E+02	0.00E+00
85-01-8	Phenanthrene	1100	ug/kg	na	na	0.00E+00	0.00E+00			ug/l	na	na	0.00E+00
129-00-0	Pyrene	1800	ug/kg	na	1.5E+03	0.00E+00	1.20E-03			3.00 ug/l	na	1.8E+02	0.00E+00
7782-49-2	Selenium	0.80	mg/kg	na	3.7E+02	0.00E+00	2.16E-03			5.90 ug/l	na	1.8E+02	0.00E+00
7440-36-0	Thallium (Thallic oxide)	0.86	mg/kg	na	5.2E+00	0.00E+00	1.65E-01			3.20 ug/l	na	2.6E+00	0.00E+00
7440-62-2	Vanadium	163.6	mg/kg	na	5.2E+02	0.00E+00	3.15E-01			120 ug/l	na	2.6E+02	0.00E+00
7440-66-6	Zinc	391.2	mg/kg	na	2.2E+04	0.00E+00	1.78E-02			237 ug/l	na	1.1E+04	0.00E+00
						Cancer	Non-Cancer						
CALCULATED RISK AND HAZARD INDEX						5.74E-05	5.42E+00						
CALCULATED RISK AND HAZARD INDEX													

na: Not applicable

APPENDIX C-2

**TABLE C-2, TIER 1 SCREENING ANALYSIS DATA SUMMARY,
ZONE 24 PARCEL 215**

TABLE C-2
Tier 1 Screening Analysis Data Summary
Zone 24 - Parcel 215

DESCRIPTIVE STATISTICS FOR MATRIX = SOIL													
CAS No.	PARAMETER	Quantitation Limit(s)	Number of Detections	Number of Samples	Distrib. Type	Mean (a)	Standard Deviation (a)	Variance (a)	Minimum Detected Concentr.	Maximum Detected Concentr.	Units	H/t Statistic (b)	EPA RAGS 95% UCL
120-82-1	1,2,4-Trichlorobenzene	340-7100	1	14	N(2)	752.86	1189	1414000	1100	1100	ug/kg	1.771	1316
106-46-7	1,4-Dichlorobenzene	340-7100	1	14	N(2)	767.14	1194.7	1427000	1300	1300	ug/kg	1.771	1333
95-57-8	2-Chlorophenol	340-7100	1	14	N(2)	752.86	1189	1414000	1100	1100	ug/kg	1.771	1316
72-54-8	4,4'-DDD	3.40-4.0	5	14	LN	1.0863	0.883	0.7796	2.10	37.0	ug/kg	2.589	8.25
72-55-9	4,4'-DDE	3.40-4.0	5	14	LN	0.8185	0.6474	0.4191	1.40	19.0	ug/kg	2.181	4.14
50-29-3	4,4'-DDT	3.40-4.0	8	14	LN	1.7792	1.4805	2.1919	3.80	260	ug/kg	3.612	78.12
83-32-9	Acenaphthene	340-7100	1	14	N(2)	774.29	1198.4	1436000	1400	1400	ug/kg	1.771	1342
208-96-8	Acenaphthylene	340-7100	2	14	N(2)	912.36	1404.3	1972000	68.0	330	ug/kg	1.771	1577
309-00-2	Aldrin	1.80-2.0	5	14	LN	0.398	1.026	1.0527	0.60	32.0	ug/kg	2.744	5.50
5103-71-9	Alpha-chlordane	1.80-2.0	1	14	N(2)	0.9643	0.0569	0.003242	1.10	1.10	ug/kg	1.771	0.99
7429-90-5	Aluminum	13.50-34.0	14	14	N(1)	10966	3428.4	11750000	5190	19100	mg/kg	1.771	12589
120-12-7	Anthracene	340-7100	2	14	N(2)	914.57	1403.1	1969000	79.0	350	ug/kg	1.771	1579
7440-36-0	Antimony	1.2-3.25	12	14	LN	0.0424	1.2062	1.455	0.50	13.70	mg/kg	3.163	6.22
12674-11-2	Aroclor 1016	34.0-40.0	1	14	N(2)	22.893	16.17	261.47	79.0	79.0	ug/kg	1.771	30.55
11096-82-5	Aroclor-1260	34.0-40.0	3	14	N(2)	58.464	98.208	9644.8	83.0	370	ug/kg	1.771	104.9
7440-38-2	Arsenic	2.1-5.25	14	14	N(1)	7.5286	3.4096	11.625	3.20	17.40	mg/kg	1.771	9.14
7440-39-3	Barium	41.60-105	14	14	N(1)	205.72	124.47	15492	70.70	499	mg/kg	1.771	264.6
56-55-3	Benzo(a)anthracene	340-7100	8	14	N(1)	797.43	1213.2	1472000	40	1200	ug/kg	1.771	1372
50-32-8	Benzo(a)pyrene	340-7100	8	14	N(1)	831.57	1208.9	1461000	55.0	1200	ug/kg	1.771	1404
205-99-2	Benzo(b)fluoranthene	340-7100	10	14	LN	5.7037	1.5146	2.2939	59.0	1800	ug/kg	3.612	4307
191-24-2	Benzo(g,h,i)perylene	340-7100	1	14	N(2)	932.5	1393.3	1941000	300	300	ug/kg	1.771	1592
207-08-9	Benzo(k)fluoranthene	340-7100	4	14	N(2)	916.5	1403.7	1970000	56.0	440	ug/kg	1.771	1581
7440-41-7	Beryllium	1.0-2.5	10	14	N(1)	0.2044	0.1756	0.0308	0.074	0.56	mg/kg	1.771	0.29
117-81-7	Bis(2-ethylhexyl)phthalate	340-7100	2	14	N(2)	908.36	1407.4	1981000	37.0	95.0	ug/kg	1.771	1574.51
7440-43-9	Cadmium	1.0-2.5	13	14	N(1)	0.2472	0.1193	0.0142	0.10	0.39	mg/kg	1.771	0.30
86-74-8	Carbazole	340-7100	1	14	N(2)	904.07	1408.1	1983000	97.0	97.0	ug/kg	1.771	1570.55
7440-47-3	Chromium	2.10-5.25	14	14	N(3)	151.47	239.46	57341	27.10	792	mg/kg	1.771	264.81
218-01-9	Chrysene	340-7100	8	14	N(1)	769.93	1209.4	1463000	40.0	1100	ug/kg	1.771	1342.36
7440-48-4	Cobalt	10.40-26.30	14	14	N(1)	13.329	5.8022	33.665	6.10	28.10	mg/kg	1.771	16.08
7440-50-8	Copper	5.20-13.0	14	14	LN	3.9716	1.0319	1.0649	17.40	533	mg/kg	2.744	198.2
53-70-3	Dibenz(a,h)anthracene	340-7100	1	14	N(2)	905	1407.6	1981000	110	110	ug/kg	1.771	1571.24
60-57-1	Dieldrin	3.40-4.0	7	14	N(1)	4.125	4.0474	16.382	1.90	13.0	ug/kg	1.771	6.04
84-66-2	Diethyl phthalate	340-7100	3	14	N(2)	972.71	1392.9	1940000	62.0	1100	ug/kg	1.771	1632
959-98-8	Endosulfan I	1.80-2.0	1	14	N(2)	1.0821	0.4672	0.2183	2.70	2.70	ug/kg	1.771	1.30

TABLE C-2
Tier 1 Screening Analysis Data Summary
Zone 24 - Parcel 215

DESCRIPTIVE STATISTICS FOR MATRIX = SOIL													
CAS No.	PARAMETER	Quantitation Limit(s)	Number of Detections	Number of Samples	Distrib. Type	Mean (a)	Standard Deviation (a)	Variance (a)	Minimum Detected Concentr.	Maximum Detected Concentr.		H/t Statistic (b)	EPA RAGS 95% UCL
33213-65-9	Endosulfan II	3.40-4.0	2	14	N(2)	1.9143	0.2756	0.0759	1.60	2.80	ug/kg	1.771	2.04
72-20-8	Endrin	3.40-4.0	6	14	LN	1.0543	0.7999	0.6398	2.30	28.0	ug/kg	2.443	6.80
7421-93-4	Endrin Aldehyde	3.40-4.0	2	14	N(2)	4.1714	6.1786	38.175	13.0	23.0	ug/kg	1.771	7.10
53494-70-5	Endrin ketone	3.40-4.0	4	14	N(2)	4.475	5.4667	29.885	6.00	21.0	ug/kg	1.771	7.06
206-44-0	Fluoranthene	340-7100	9	14	N(1)	783.57	1066.1	1.14E+06	50.0	2100	ug/kg	1.771	1288
86-73-7	Fluorene	340-7100	1	14	N(2)	905.71	1407.1	1.98E+06	120	120	ug/kg	1.771	1572
5103-74-2	Gamma-chlordane	1.80-2.0	6	14	N(3)	2.3179	3.6875	13.598	1.30	15.0	ug/kg	1.771	4.06
319-84-6	HCH (alpha)	1.80-2.0	1	14	N(2)	0.9264	0.0965	9.32E-03	0.62	0.62	ug/kg	1.771	0.97
76-44-8	Heptachlor	1.80-2.0	1	14	N(2)	1.0893	0.4939	0.2439	2.80	2.80	ug/kg	1.771	1.32
1024-57-3	Heptachlor epoxide	1.80-2.0	7	14	LN	0.4223	0.8605	0.7405	1.10	18.0	ug/kg	2.589	4.10
193-39-5	Indeno(1,2,3-cd)pyrene	340-7100	3	14	N(2)	914.36	1403.4	1.97E+06	41.0	310	ug/kg	1.771	1578.6
7439-92-1	Lead	0.62-1.58	14	14	LN	4.2053	1.0296	1.0601	10.50	491	mg/kg	2.744	249.4
7439-96-5	Manganese	3.10-7.75	14	14	N(1)	633.21	472.68	223425	121	1860	mg/kg	1.771	856.9
7439-98-6	Mercury	0.10-0.12	12	14	LN	-1.5654	1.1731	1.3763	0.076	2.20	mg/kg	3.163	1.16
72-43-5	Methoxyclor	18.0-20.0	5	14	N(1)	15.55	16.874	284.73	3.70	65.0	ug/kg	1.771	23.54
7439-98-7	Molybdenum	1.40-3.50	9	14	LN	-1.3964	1.1782	1.3882	0.17	3.90	mg/kg	3.163	1.39
7440-02-0	Nickel	8.30-21.0	14	14	LN	4.4497	0.9145	0.8363	29.60	899	mg/kg	2.589	250.8
85-01-8	Phenanthrene	340-7100	4	14	N(2)	788.86	1198.1	1.44E+06	74.0	1100	ug/kg	1.771	1356
129-00-0	Pyrene	340-7100	10	14	LN	5.6825	1.4251	2.0308	60.0	1800	ug/kg	3.612	3380
7782-49-2	Selenium	1.0-1.20	7	14	N(1)	0.6007	0.4314	0.1861	0.59	1.50	mg/kg	1.771	0.80
7440-28-0	Thallium	0.52-0.60	8	14	LN	-1.0408	0.8157	0.6654	0.38	1.90	mg/kg	2.443	0.86
7440-62-2	Vanadium	10.40-12.0	14	14	N(3)	92.486	150.2	22561	23.0	561	mg/kg	1.771	163.6
7440-66-6	Zinc	4.20-4.80	14	14	LN	4.8834	0.9212	0.8487	45.90	838	mg/kg	2.589	391.2
11-87-7	TPH as diesel	11.0-110	1	14	N(2)	37.964	90.412	8174.3	350	350	mg/kg	1.771	80.76
8006-61-9	TPH as gasoline	0.52-0.60	1	14	N(2)	0.2614	0.0707	4.99E-03	0.020	0.020	mg/kg	1.771	0.29
NOTES:													
LN : Lognormal distribution of sample population as determined by the Wilks-Shapiro Method. UCL95 calculated for natural logarithm transformed data.													
N(1) : Normal distribution of sample population as determined by the Wilks-Shapiro Method													
N(2) : Too few detections to determine distribution. UCL95 calculated from arithmetic mean and standard deviation.													
N(3) : Data are not normally or lognormally distributed. UCL 95 calculated from arithmetic mean and standard deviation.													
(a) : In cases of lognormal distribution the values for Lower 95% confidence, Mean, Standard Deviation, and Variance represent the LN transformed data.													
(b) : H/t statistic: factors used in the calculation of UCL 95% as directed in Supplemental Guidance to RAGS (EPA, May 1992).													
- Values for the H or t statistic are derived from Gilbert, Appendix A.													
VALUE: : Indicates that the maximum value was used in subsequent risk calculations.													

TABLE C-2
Tier 1 Screening Analysis Data Summary
Zone 24 - Parcel 215

DESCRIPTIVE STATISTICS FOR MATRIX = WATER													
CAS No.	PARAMETER	Quantitation Limit(s)	Number of Detections	Number of Samples	Distrib. Type	Mean (a)	Standard Deviation (a)	Variance (a)	Minimum Detected Concentr.	Maximum Detected Concentr.	Units	H/t Statistic (b)	EPA RAGS 95% UCL
71-55-6	1,1,1-Trichloroethane	10-50	1	3	N(2)	11	12.166	148	3.00	3.00	ug/l	2.920	31.51
91-57-6	2-Methylnaphthalene	10-40	1	3	N(2)	9.3333	9.2916	86.333	3.00	3.00	ug/l	2.920	25.00
72-54-8	4,4'-DDD	0.10	1	3	N(2)	0.0533	0.005774	3.33E-05	0.060	0.060	ug/l	2.920	0.06
72-55-9	4,4'-DDE	0.10	1	3	N(2)	0.0543	0.007506	5.63E-05	0.063	0.063	ug/l	2.920	0.07
50-29-3	4,4'-DDT	0.10	1	3	N(2)	0.24	0.3291	0.1083	0.620	0.620	ug/l	2.920	0.79
67-64-1	Acetone	10-50	2	3	N(2)	17.333	11.59	134.33	4.00	23.0	ug/l	2.920	36.87
7429-90-5	Aluminum	50.0	3	3	N(2)	115.83	69.599	4844.1	35.5	158	ug/l	2.920	233.2
309-00-2	Aldrin	0.050	1	3	N(2)	0.0497	0.0427	0.001825	0.099	0.099	ug/l	2.920	0.12
7440-36-0	Antimony	6.0	3	3	N(2)	22.367	17.906	320.62	4.20	40.0	ug/l	2.920	52.55
11096-82-5	Aroclor-1260	1.0	1	3	N(2)	0.6667	0.2887	0.0833	1.00	1.00	ug/l	2.920	1.15
7440-38-2	Arsenic	10	3	3	N(2)	41.7	34.13	1164.9	15.90	80.40	ug/l	2.920	99.24
7440-39-3	Barium	200	3	3	N(2)	375.9	406.87	165542	98.70	843	ug/l	2.920	1062
117-81-7	Bis(2-ethylhexyl)phthalate	4.0-16.0	2	3	N(2)	4	3.4641	12	2.00	2.00	ug/l	2.920	9.84
7440-43-9	Cadmium	5.0	2	3	N(2)	0.685	0.8034	0.6455	0.36	1.60	ug/l	2.920	2.04
7440-47-3	Chromium	10	3	3	N(2)	22.2	30.148	908.92	4.00	57.0	ug/l	2.920	73.03
7440-48-4	Cobalt	50	3	3	N(2)	8.0333	7.3078	53.403	2.90	16.40	ug/l	2.920	20.35
7440-50-8	Copper	25	3	3	N(2)	150.37	221.47	49049	16.40	406	ug/l	2.920	523.7
84-74-2	Di(n)butyl phthalate	10-40	2	3	N(2)	9.3333	9.7125	94.333	1.00	7.00	ug/l	2.920	25.71
33213-65-9	Endosulfan II	0.10	1	3	N(2)	0.0413	0.015	2.25E-04	0.024	0.024	ug/l	2.920	0.07
72-20-8	Endrin	0.10	1	3	N(2)	0.1067	0.0981	9.63E-03	0.22	0.22	ug/l	2.920	0.27
53494-70-5	Endrin ketone	0.10	1	3	N(2)	0.0377	0.0214	4.56E-04	0.013	0.013	ug/l	2.920	0.07
5103-4-2	Gamma-chlordane	0.050	1	3	N(2)	0.032	0.0121	1.47E-04	0.046	0.046	ug/l	2.920	0.05
1024-57-3	Heptachlor epoxide	0.010	1	3	N(2)	0.0127	0.0133	1.76E-04	0.028	0.028	ug/l	2.920	0.04
7439-92-1	Lead	3.0	3	3	N(2)	8.4333	9.5793	91.763	1.70	19.40	ug/l	2.920	24.58
7439-96-5	Manganese	15	3	3	N(2)	1469	812.28	659793	637	2260	ug/l	2.920	2838
7439-98-7	Mercury	0.20	1	3	N(2)	0.1967	0.2281	0.052	0.460	0.460	ug/l	2.920	0.58
78-93-3	Methyl ethyl ketone	10-50	1	3	N(2)	10.667	12.503	156.33	2.00	2.00	ug/l	2.920	31.75
7439-98-7	Molybdenum	5.0	3	3	N(2)	39.567	26.304	691.9	16.10	68.0	ug/l	2.920	83.91
91-20-3	Naphthalene	10-40	1	3	N(2)	9.3333	9.2916	86.333	3.00	3.00	ug/l	2.920	25.0
7440-02-0	Nickel	40	3	3	N(2)	106.93	142.23	20229	8.50	270	ug/l	2.920	346.7
129-00-0	Pyrene	10-40	1	3	N(2)	9.3333	9.2916	86.333	3.00	3.00	ug/l	2.920	25.00
7782-49-2	Selenium	5.0	3	3	N(2)	5.5333	0.3512	0.1233	5.20	5.90	ug/l	2.920	6.13
7440-28-0	Thallium	2.0	2	3	N(2)	1.9833	1.2251	1.5008	2.00	3.20	ug/l	2.920	4.05
7440-62-2	Vanadium	50	3	3	N(2)	44.833	65.146	4244	4.70	120	ug/l	2.920	154.7

TABLE C-2
Tier 1 Screening Analysis Data Summary
Zone 24 - Parcel 215

DESCRIPTIVE STATISTICS FOR MATRIX = WATER													
CAS No.	PARAMETER	Quantitation Limit(s)	Number of Detections	Number of Samples	Distrib. Type	Mean (a)	Standard Deviation (a)	Variance (a)	Minimum Detected Concentr.	Maximum Detected Concentr.		H/t Statistic (b)	EPA RAGS 95% UCL
7440-66-6	Zinc	20	3	3	N(2)	121.77	115.35	13306	6.30	237	ug/l	2.920	316.2
8006-61-9	TPH as gasoline	0.05-0.25	2	3	N(2)	0.0383	0.0126	1.58E-04	0.040	0.050	mg/l	2.920	0.06
NOTES:													
LN : Lognormal distribution of sample population as determined by the Wilks-Shapiro Method. UCL95 calculated for natural logarithm transformed data.													
N(1) : Normal distribution of sample population as determined by the Wilks-Shapiro Method													
N(2) : Too few detections to determine distribution. UCL95 calculated from arithmetic mean and standard deviation.													
N(3) : Data are not normally or lognormally distributed. UCL 95 calculated from arithmetic mean and standard deviation.													
(a) : In cases of lognormal distribution the values for Lower 95% confidence, Mean, Standard Deviation, and Variance represent the LN tranformed data.													
(b) : H/t statistic: factors used in the calculation of UCL 95% as directed in Supplemental Guidance to RAGS (EPA, May 1992).													
- Values for the H or t statistic are derived from Gilbert, Appendix A.													
VALUE ^(a) : Indicates that the maximum value was used in subsequent risk calculations.													

APPENDIX C-3

**TABLE 3 THROUGH 20 NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST),
TIER 2 SOIL SCREENING EVALUATION & TOXICOLOGY
PROFILES OF CHEMICALS OF POTENTIAL CONCERN**

TABLE 3
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Risk ⁽⁴⁾
Incidental Ingestion of Soil	1,4-Dichlorobenzene	1.3E+00	2.0E-06	2.4E-02 (4.0E-02)	4.9E-08 (8.1E-08)
	4,4'-DDD	8.2E-03	1.3E-08	2.4E-01 (2.4E-01)	3.1E-09 (3.1E-09)
	4,4'-DDE	4.1E-03	6.5E-09	3.4E-01 (3.4E-01)	2.2E-09 (2.2E-09)
	4,4'-DDT	7.8E-02	1.2E-07	3.4E-01 (3.4E-01)	4.2E-08 (4.2E-08)
	Aldrin	5.5E-03	8.6E-09	1.7E+01 (1.7E+01)	1.5E-07 (1.5E-07)
	Alpha-chlordane	9.9E-04	1.6E-09	1.3E+00 (1.2E+00)	2.0E-09 (1.9E-09)
	Aroclor 1016	3.1E-02	4.8E-08	NA (7.0E-02)	ND (3.3E-09)
	Aroclor-1260	1.0E-01	1.6E-07	2.0E+00 (2.0E+00)	3.3E-07 (3.3E-07)
	Benzo(a)anthracene	1.2E+00	1.9E-06	7.3E-01 (1.2E+00)	1.4E-06 (2.3E-06)
	Benzo(a)pyrene	1.2E+00	1.9E-06	7.3E+00 (1.2E+01)	1.4E-05 (2.3E-05)
	Benzo(b)fluoranthene	1.8E+00	2.8E-06	7.3E-01 (1.2E+00)	2.1E-06 (3.4E-06)
	Benzo(k)fluoranthene	4.4E-01	6.9E-07	7.3E-02 (1.2E+00)	5.0E-08 (8.3E-07)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.5E-07	1.4E-02 (8.4E-03)	2.1E-09 (1.2E-09)
	Carbazole	9.7E-02	1.5E-07	2.0E-02 (2.0E-02)	3.0E-09 (3.0E-09)
	Chromium	2.6E+02	4.1E-04	NA (NA)	ND (ND)
	Chrysene	1.1E+00	1.7E-06	7.3E-03 (1.2E-01)	1.3E-08 (2.1E-07)
	Dibenz(a,h)anthracene	1.1E-01	1.7E-07	7.3E+00 (4.1E+00)	1.3E-06 (7.1E-07)
	Dieldrin	6.0E-03	9.5E-09	1.6E+01 (1.6E+01)	1.5E-07 (1.5E-07)
	Gamma-Chlordane	4.1E-03	6.4E-09	1.3E+00 (1.2E+00)	8.3E-09 (7.6E-09)
	HCH (alpha)	6.2E-04	9.7E-10	6.3E+00 (6.3E+00)	6.1E-09 (6.1E-09)
	Heptachlor	1.3E-03	2.1E-09	4.5E+00 (5.7E+00)	9.3E-09 (1.2E-08)
	Heptachlor epoxide	4.1E-03	6.4E-09	9.1E+00 (1.3E+01)	5.8E-08 (8.3E-08)
	Indeno(1,2,3-cd)pyrene	3.1E-01	4.9E-07	7.3E-01 (1.2E+00)	3.5E-07 (5.8E-07)
	Nickel	2.5E+02	3.9E-04	NA (NA)	ND (ND)
	Total Risk				2.0E-05 (3.1E-05)
Dermal Contact with Soil	1,4-Dichlorobenzene	1.3E+00	3.8E-07	3.0E-02 (4.0E-02)	1.1E-08 (1.5E-07)
	4,4'-DDD	8.2E-03	2.4E-09	4.8E-01 (2.4E-01)	1.2E-09 (2.9E-09)
	4,4'-DDE	4.1E-03	1.2E-09	6.8E-01 (3.4E-01)	8.3E-10 (2.1E-09)
	4,4'-DDT	7.8E-02	2.3E-08	6.8E-01 (3.4E-01)	1.6E-08 (3.9E-08)
	Aldrin	5.5E-03	1.6E-09	3.4E+01 (1.7E+01)	5.5E-08 (1.4E-07)
	Alpha-chlordane	9.9E-04	2.9E-10	2.6E+00 (1.2E+00)	7.6E-10 (1.7E-09)
	Aroclor 1016	3.1E-02	5.4E-08	NA (7.0E-02)	ND (9.4E-09)
	Aroclor-1260	1.0E-01	1.8E-07	4.0E+00 (2.0E+00)	7.4E-07 (9.2E-07)
	Benzo(a)anthracene	1.2E+00	3.5E-07	1.5E+00 (1.2E+00)	5.1E-07 (6.3E-06)
	Benzo(a)pyrene	1.2E+00	3.5E-07	1.5E+01 (1.2E+01)	5.1E-06 (6.3E-05)
	Benzo(b)fluoranthene	1.8E+00	5.3E-07	1.5E+00 (1.2E+00)	7.7E-07 (9.5E-06)
	Benzo(k)fluoranthene	4.4E-01	1.3E-07	1.5E-01 (1.2E+00)	1.9E-08 (2.3E-06)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.8E-08	2.8E-02 (8.4E-03)	7.8E-10 (2.3E-09)
	Carbazole	9.7E-02	2.8E-08	4.0E-02 (2.0E-02)	1.1E-09 (5.7E-09)
	Chromium	2.6E+02	7.8E-06	NA (NA)	ND (ND)
	Chrysene	1.1E+00	3.2E-07	1.5E-02 (1.2E-01)	4.7E-09 (5.8E-07)
	Dibenz(a,h)anthracene	1.1E-01	3.2E-08	1.5E+01 (4.1E+00)	4.7E-07 (2.0E-06)

TABLE 3 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Dermal Contact with Soil	Dieldrin	6.0E-03	1.8E-09	3.2E+01 (1.6E+01)	5.7E-08 (1.4E-07)
	Gamma-Chlordane	4.1E-03	1.2E-09	2.6E+00 (1.2E+00)	3.1E-09 (7.2E-09)
	HCH (alpha)	6.2E-04	1.8E-10	1.3E+01 (6.3E+00)	2.3E-09 (5.7E-09)
	Heptachlor	1.3E-03	3.9E-10	9.0E+00 (5.7E+00)	3.5E-09 (1.1E-08)
	Heptachlor epoxide	4.1E-03	1.2E-09	1.8E+01 (1.3E+01)	2.2E-08 (7.8E-08)
	Indeno(1,2,3-cd)pyrene	3.1E-01	9.1E-08	1.5E+00 (1.2E+00)	1.3E-07 (1.6E-06)
	Nickel	2.5E+02	7.4E-06	NA (NA)	ND (ND)
					Total Risk 8.0E-06 (8.7E-05)
Inhalation of Particulates	1,4-Dichlorobenzene	1.3E+00	1.2E-10	NA (4.0E-02)	ND (4.6E-12)
	4,4'-DDD	8.2E-03	7.3E-13	NA (2.4E-01)	ND (1.8E-13)
	4,4'-DDE	4.1E-03	3.7E-13	NA (3.4E-01)	ND (1.2E-13)
	4,4'-DDT	7.8E-02	6.9E-12	3.4E-01 (3.4E-01)	2.4E-12 (2.4E-12)
	Aldrin	5.5E-03	4.9E-13	1.7E+01 (1.7E+01)	8.3E-12 (8.3E-12)
	Alpha-chlordane	9.9E-04	8.8E-14	1.3E+00 (1.2E+00)	1.1E-13 (1.1E-13)
	Aroclor 1016	3.1E-02	2.7E-12	NA (7.0E-02)	ND (1.9E-13)
	Aroclor-1260	1.0E-01	9.3E-12	NA (2.0E+00)	ND (1.9E-11)
	Benzo(a)anthracene	1.2E+00	1.1E-10	NA (3.9E-01)	ND (4.2E-11)
	Benzo(a)pyrene	1.2E+00	1.1E-10	NA (3.9E+00)	ND (4.2E-10)
	Benzo(b)fluoranthene	1.8E+00	1.6E-10	NA (3.9E-01)	ND (6.2E-11)
	Benzo(k)fluoranthene	4.4E-01	3.9E-11	NA (3.9E-01)	ND (1.5E-11)
	Bis(2-ethylhexyl)phthalate	9.5E-02	8.4E-12	NA (8.4E-03)	ND (7.1E-14)
	Carbazole	9.7E-02	8.6E-12	NA (2.0E-02)	ND (1.7E-13)
	Chromium	2.6E+02	2.4E-08	4.2E+01 (4.2E+01)	1.0E-06 (1.0E-06)
	Chrysene	1.1E+00	9.8E-11	NA (3.9E-02)	ND (3.8E-12)
	Dibenz(a,h)anthracene	1.1E-01	9.8E-12	NA (4.1E+00)	ND (4.0E-11)
	Dieldrin	6.0E-03	5.4E-13	1.6E+01 (1.6E+01)	8.6E-12 (8.6E-12)
	Gamma-Chlordane	4.1E-03	3.6E-13	1.3E+00 (1.2E+00)	4.7E-13 (4.3E-13)
	HCH (alpha)	6.2E-04	5.5E-14	6.3E+00 (6.3E+00)	3.5E-13 (3.5E-13)
	Heptachlor	1.3E-03	1.2E-13	4.6E+00 (5.7E+00)	5.4E-13 (6.7E-13)
	Heptachlor epoxide	4.1E-03	3.6E-13	9.1E+00 (1.3E+01)	3.3E-12 (4.7E-12)
	Indeno(1,2,3-cd)pyrene	3.1E-01	2.8E-11	NA (3.9E-01)	ND (1.1E-11)
	Nickel	2.5E+02	2.2E-08	NA (9.1E-01)	ND (2.0E-08)
					Total Risk 9.9E-07 (1.0E-06)
Inhalation of VOCs	1,4-Dichlorobenzene	1.3E+00	1.2E-05	NA (4.0E-02)	ND (4.7E-07)
					Cumulative Risk 2.9E-05 (1.2E-04)

Notes:

95 UCL 95 percent upper confidence limit
mg/kg Milligrams per kilogram
mg/kg-day Milligrams per kilogram per day
NA Not applicable

TABLE 3 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
CARCINOGENIC RISKS

ND Not determined
RME Reasonable maximum exposure
VOCs Volatile organic chemicals
COC Chemical of concern

- (1) Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
- (2) 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.
- (4) Cal/EPA risk estimates are presented in parentheses.

TABLE 4
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ⁽¹⁾	95% UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Risk ⁽⁴⁾
Incidental Ingestion of Soil	1,4-Dichlorobenzene	1.3E+00	4.4E-07	2.4E-02 (4.0E-02)	1.0E-08 (1.7E-08)
	4,4'-DDD	8.2E-03	2.8E-09	2.4E-01 (2.4E-01)	6.6E-10 (6.6E-10)
	4,4'-DDE	4.1E-03	1.4E-09	3.4E-01 (3.4E-01)	4.7E-10 (4.7E-10)
	4,4'-DDT	7.8E-02	2.6E-08	3.4E-01 (3.4E-01)	8.9E-09 (8.9E-09)
	Aldrin	5.5E-03	1.8E-09	1.7E+01 (1.7E+01)	3.1E-08 (3.1E-08)
	Alpha-chlordane	9.9E-04	3.3E-10	1.3E+00 (1.2E+00)	4.3E-10 (4.0E-10)
	Aroclor 1016	3.1E-02	1.0E-08	NA (7.0E-02)	ND (7.2E-10)
	Aroclor-1260	1.0E-01	3.5E-08	2.0E+00 (2.0E+00)	7.0E-08 (7.0E-08)
	Benzo(a)anthracene	1.2E+00	4.0E-07	7.3E-01 (1.2E+00)	2.9E-07 (4.8E-07)
	Benzo(a)pyrene	1.2E+00	4.0E-07	7.3E+00 (1.2E+01)	2.9E-06 (4.8E-06)
	Benzo(b)fluoranthene	1.8E+00	6.0E-07	7.3E-01 (1.2E+00)	4.4E-07 (7.3E-07)
	Benzo(k)fluoranthene	4.4E-01	1.5E-07	7.3E-02 (1.2E+00)	1.1E-08 (1.8E-07)
	Bis(2-ethylhexyl)phthalate	9.5E-02	3.2E-08	1.4E-02 (8.4E-03)	4.5E-10 (2.7E-10)
	Carbazole	9.7E-02	3.3E-08	2.0E-02 (2.0E-02)	6.5E-10 (6.5E-10)
	Chromium	2.6E+02	8.9E-05	NA (NA)	ND (ND)
	Chrysene	1.1E+00	3.7E-07	7.3E-03 (1.2E-01)	2.7E-09 (4.4E-08)
	Dibenz(a,h)anthracene	1.1E-01	3.7E-08	7.3E+00 (4.1E+00)	2.7E-07 (1.5E-07)
	Dieldrin	6.0E-03	2.0E-09	1.6E+01 (1.6E+01)	3.2E-08 (3.2E-08)
	Gamma-Chlordane	4.1E-03	1.4E-09	1.3E+00 (1.2E+00)	1.8E-09 (1.6E-09)
	HCH (alpha)	6.2E-04	2.1E-10	6.3E+00 (6.3E+00)	1.3E-09 (1.3E-09)
	Heptachlor	1.3E-03	4.4E-10	4.5E+00 (5.7E+00)	2.0E-09 (2.5E-09)
	Heptachlor epoxide	4.1E-03	1.4E-09	9.1E+00 (1.3E+01)	1.3E-08 (1.8E-08)
	Indeno(1,2,3-cd)pyrene	3.1E-01	1.0E-07	7.3E-01 (1.2E+00)	7.6E-08 (1.2E-07)
	Nickel	2.5E+02	8.4E-05	NA (NA)	ND (ND)
Total Risk					4.2E-06 (6.7E-06)
Dermal Contact with Soil	1,4-Dichlorobenzene	1.3E+00	6.1E-09	3.0E-02 (4.0E-02)	1.8E-10 (2.4E-09)
	4,4'-DDD	8.2E-03	3.9E-11	4.8E-01 (2.4E-01)	1.9E-11 (4.7E-11)
	4,4'-DDE	4.1E-03	1.9E-11	6.8E-01 (3.4E-01)	1.3E-11 (3.3E-11)
	4,4'-DDT	7.8E-02	3.7E-10	6.8E-01 (3.4E-01)	2.5E-10 (6.3E-10)
	Aldrin	5.5E-03	2.6E-11	3.4E+01 (1.7E+01)	8.8E-10 (2.2E-09)
	Alpha-chlordane	9.9E-04	4.7E-12	2.6E+00 (1.2E+00)	1.2E-11 (2.8E-11)
	Aroclor 1016	3.1E-02	8.6E-10	NA (7.0E-02)	ND (1.5E-10)
	Aroclor-1260	1.0E-01	3.0E-09	4.0E+00 (2.0E+00)	1.2E-08 (1.5E-08)
	Benzo(a)anthracene	1.2E+00	5.7E-09	1.5E+00 (1.2E+00)	8.3E-09 (1.0E-07)
	Benzo(a)pyrene	1.2E+00	5.7E-09	1.5E+01 (1.2E+01)	8.3E-08 (1.0E-06)
	Benzo(b)fluoranthene	1.8E+00	8.5E-09	1.5E+00 (1.2E+00)	1.2E-08 (1.5E-07)
	Benzo(k)fluoranthene	4.4E-01	2.1E-09	1.5E-01 (1.2E+00)	3.0E-10 (3.7E-08)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.5E-10	2.8E-02 (8.4E-03)	1.3E-11 (3.8E-11)
	Carbazole	9.7E-02	4.6E-10	4.0E-02 (2.0E-02)	1.8E-11 (9.1E-11)
	Chromium	2.6E+02	1.2E-07	NA (NA)	ND (ND)
	Chrysene	1.1E+00	5.2E-09	1.5E-02 (1.2E-01)	7.6E-11 (9.3E-09)
	Dibenz(a,h)anthracene	1.1E-01	5.2E-10	1.5E+01 (4.1E+00)	7.6E-09 (3.2E-08)
	Dieldrin	6.0E-03	2.8E-11	3.2E+01 (1.6E+01)	9.1E-10 (2.3E-09)

TABLE 4 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Dermal Contact with Soil	Gamma-Chlordane	4.1E-03	1.9E-11	2.6E+00 (1.2E+00)	5.1E-11 (1.1E-10)
	HCH (alpha)	6.2E-04	2.9E-12	1.3E+01 (6.3E+00)	3.7E-11 (9.2E-11)
	Heptachlor	1.3E-03	6.2E-12	9.0E+00 (5.7E+00)	5.6E-11 (1.8E-10)
	Heptachlor epoxide	4.1E-03	1.9E-11	1.8E+01 (1.3E+01)	3.5E-10 (1.3E-09)
	Indeno(1,2,3-cd)pyrene	3.1E-01	1.5E-09	1.5E+00 (1.2E+00)	2.1E-09 (2.6E-08)
	Nickel	2.5E+02	1.2E-07	NA (NA)	ND (ND)
					Total Risk 1.3E-07 (1.4E-06)
Inhalation of Particulates	1,4-Dichlorobenzene	1.3E+00	1.7E-11	NA (4.0E-02)	ND (7.0E-13)
	4,4'-DDD	8.2E-03	1.1E-13	NA (2.4E-01)	ND (2.6E-14)
	4,4'-DDE	4.1E-03	5.5E-14	NA (3.4E-01)	ND (1.9E-14)
	4,4'-DDT	7.8E-02	1.0E-12	3.4E-01 (3.4E-01)	3.6E-13 (3.6E-13)
	Aldrin	5.5E-03	7.4E-14	1.7E+01 (1.7E+01)	1.3E-12 (1.3E-12)
	Alpha-chlordane	9.9E-04	1.3E-14	1.3E+00 (1.2E+00)	1.7E-14 (1.6E-14)
	Aroclor 1016	3.1E-02	4.1E-13	NA (7.0E-02)	ND (2.9E-14)
	Aroclor-1260	1.0E-01	1.4E-12	NA (2.0E+00)	ND (2.8E-12)
	Benzo(a)anthracene	1.2E+00	1.6E-11	NA (3.9E-01)	ND (6.3E-12)
	Benzo(a)pyrene	1.2E+00	1.6E-11	NA (3.9E+00)	ND (6.3E-11)
	Benzo(b)fluoranthene	1.8E+00	2.4E-11	NA (3.9E-01)	ND (9.4E-12)
	Benzo(k)fluoranthene	4.4E-01	5.9E-12	NA (3.9E-01)	ND (2.3E-12)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.3E-12	NA (8.4E-03)	ND (1.1E-14)
	Carbazole	9.7E-02	1.3E-12	NA (2.0E-02)	ND (2.6E-14)
	Chromium	2.6E+02	3.5E-09	4.2E+01 (4.2E+01)	1.5E-07 (1.5E-07)
	Chrysene	1.1E+00	1.5E-11	NA (3.9E-02)	ND (5.7E-13)
	Dibenz(a,h)anthracene	1.1E-01	1.5E-12	NA (4.1E+00)	ND (6.0E-12)
	Dieldrin	6.0E-03	8.1E-14	1.6E+01 (1.6E+01)	1.3E-12 (1.3E-12)
	Gamma-Chlordane	4.1E-03	5.4E-14	1.3E+00 (1.2E+00)	7.1E-14 (6.5E-14)
	HCH (alpha)	6.2E-04	8.3E-15	6.3E+00 (6.3E+00)	5.2E-14 (5.2E-14)
	Heptachlor	1.3E-03	1.8E-14	4.6E+00 (5.7E+00)	8.1E-14 (1.0E-13)
	Heptachlor epoxide	4.1E-03	5.5E-14	9.1E+00 (1.3E+01)	5.0E-13 (7.1E-13)
	Indeno(1,2,3-cd)pyrene	3.1E-01	4.1E-12	NA (3.9E-01)	ND (1.6E-12)
	Nickel	2.5E+02	3.4E-09	NA (9.1E-01)	ND (3.1E-09)
					Total Risk 1.5E-07 (1.5E-07)
Inhalation of VOCs	1,4-Dichlorobenzene	1.3E+00	1.8E-06	NA (4.0E-02)	ND (7.1E-08)
					Total Risk ND (7.1E-08)
					Cumulative Risk 4.5E-06 (8.4E-06)

Notes:

95 UCL	95 percent upper confidence limit
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
NA	Not applicable
ND	Not determined
CTE	Central tendency exposure

TABLE 4 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
CARCINOGENIC RISKS

VOCs	Volatile organic chemicals
COC	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.
(4)	Cal/EPA risk estimates are presented in parentheses.

TABLE 5
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Risk ⁽⁴⁾
Incidental Ingestion of Groundwater	4,4'-DDD	6.0E-05	7.0E-07	2.4E-01 (2.4E-01)	1.7E-07 (1.7E-07)
	4,4'-DDE	6.3E-05	7.4E-07	3.4E-01 (3.4E-01)	2.5E-07 (2.5E-07)
	4,4'-DDT	6.2E-04	7.3E-06	3.4E-01 (3.4E-01)	2.5E-06 (2.5E-06)
	Aldrin	9.9E-05	1.2E-06	1.7E+01 (1.7E+01)	2.0E-05 (2.0E-05)
	Aroclor-1260	1.0E-03	1.2E-05	2.0E+00 (2.0E+00)	2.3E-05 (2.3E-05)
	Arsenic	8.0E-02	9.4E-04	1.5E+00 (1.5E+00)	1.4E-03 (1.4E-03)
	Bis(2-ethylhexyl)phthalate	2.0E-03	2.3E-05	1.4E-02 (8.4E-03)	3.3E-07 (2.0E-07)
	Gamma-chlordane	4.6E-05	5.4E-07	1.3E+00 (1.2E+00)	7.0E-07 (6.5E-07)
	Heptachlor epoxide	2.8E-05	3.3E-07	9.1E+00 (1.3E+01)	3.0E-06 (4.3E-06)
	Nickel	2.7E-01	3.2E-03	NA (NA)	ND (ND)
Total Risk					1.5E-03 (1.5E-03)
Dermal Contact with Groundwater	4,4'-DDD	6.0E-05	1.1E-09	4.8E-01 (2.4E-01)	5.2E-10 (2.6E-10)
	4,4'-DDE	6.3E-05	1.1E-09	6.8E-01 (3.4E-01)	7.8E-10 (3.9E-10)
	4,4'-DDT	6.2E-04	1.1E-08	6.8E-01 (3.4E-01)	7.7E-09 (3.8E-09)
	Aldrin	9.9E-05	1.8E-09	3.4E+01 (1.7E+01)	6.1E-08 (3.1E-08)
	Aroclor-1260	1.0E-03	1.8E-08	4.0E+00 (2.0E+00)	7.3E-08 (3.6E-08)
	Arsenic	8.0E-02	1.5E-06	7.5E+00 (1.5E+00)	1.1E-05 (2.2E-06)
	Bis(2-ethylhexyl)phthalate	2.0E-03	3.6E-08	2.8E-02 (8.4E-03)	1.0E-09 (3.1E-10)
	Gamma-chlordane	4.6E-05	8.4E-10	2.6E+00 (1.2E+00)	2.2E-09 (1.0E-09)
	Heptachlor epoxide	2.8E-05	5.1E-10	1.8E+01 (1.3E+01)	9.3E-09 (6.6E-09)
	Nickel	2.7E-01	4.9E-06	NA (NA)	ND (ND)
Total Risk					1.1E-05 (2.3E-06)
Cumulative Risk					1.5E-03 (1.5E-03)

Notes:

95 UCL 95 percent upper confidence limit
 mg/L Milligrams per liter
 mg/kg-day Milligrams per kilogram per day
 NA Not applicable
 ND Not determined
 RME Reasonable maximum exposure
 COC Chemical of concern

- (1) Aluminum, antimony, barium, chromium, lead, manganese, thallium, and zinc were eliminated as COCs based on background comparisons.
- (2) The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA

TABLE 5 (Continued)
NAS ALAMEDA PARCEL 154
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
CARCINOGENIC RISKS

1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.

- (4) Cal/EPA risk estimates are presented in parentheses.

TABLE 6
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Risk ⁽⁴⁾
Incidental Ingestion of Groundwater	4,4'-DDD	6.0E-05	9.9E-08	2.4E-01 (2.4E-01)	2.4E-08 (2.4E-08)
	4,4'-DDE	6.3E-05	1.0E-07	3.4E-01 (3.4E-01)	3.5E-08 (3.5E-08)
	4,4'-DDT	6.2E-04	1.0E-06	3.4E-01 (3.4E-01)	3.5E-07 (3.5E-07)
	Aldrin	9.9E-05	1.6E-07	1.7E+01 (1.7E+01)	2.8E-06 (2.8E-06)
	Aroclor-1260	1.0E-03	1.6E-06	2.0E+00 (2.0E+00)	3.3E-06 (3.3E-06)
	Arsenic	8.0E-02	1.3E-04	1.5E+00 (1.5E+00)	2.0E-04 (2.0E-04)
	Bis(2-ethylhexyl)phthalate	2.0E-03	3.3E-06	1.4E-02 (8.4E-03)	4.6E-08 (2.8E-08)
	Gamma-chlordane	4.6E-05	7.6E-08	1.3E+00 (1.2E+00)	9.9E-08 (9.1E-08)
	Heptachlor epoxide	2.8E-05	4.6E-08	9.1E+00 (1.3E+01)	4.2E-07 (6.0E-07)
	Nickel	2.7E-01	4.5E-04	NA (NA)	ND (ND)
Total Risk					2.1E-04 (2.1E-04)
Dermal Contact with Groundwater	4,4'-DDD	6.0E-05	1.3E-10	4.8E-01 (2.4E-01)	6.3E-11 (3.2E-11)
	4,4'-DDE	6.3E-05	1.4E-10	6.8E-01 (3.4E-01)	9.4E-11 (4.7E-11)
	4,4'-DDT	6.2E-04	1.4E-09	6.8E-01 (3.4E-01)	9.2E-10 (4.6E-10)
	Aldrin	9.9E-05	2.2E-10	3.4E+01 (1.7E+01)	7.4E-09 (3.7E-09)
	Aroclor-1260	1.0E-03	2.2E-09	4.0E+00 (2.0E+00)	8.8E-09 (4.4E-09)
	Arsenic	8.0E-02	1.8E-07	7.5E+00 (1.5E+00)	1.3E-06 (2.6E-07)
	Bis(2-ethylhexyl)phthalate	2.0E-03	4.4E-09	2.8E-02 (8.4E-03)	1.2E-10 (3.7E-11)
	Gamma-chlordane	4.6E-05	1.0E-10	2.6E+00 (1.2E+00)	2.6E-10 (1.2E-10)
	Heptachlor epoxide	2.8E-05	6.1E-11	1.8E+01 (1.3E+01)	1.1E-09 (8.0E-10)
	Nickel	2.7E-01	5.9E-07	NA (NA)	ND (ND)
Total Risk					1.3E-06 (2.7E-07)
Cumulative Risk					2.1E-04 (2.1E-04)

Notes:

95 UCL 95 percent upper confidence limit
 mg/L Milligrams per liter
 mg/kg-day Milligrams per kilogram per day
 NA Not applicable
 ND Not determined
 CTE Central tendency exposure
 COC Chemical of concern

- (1) Aluminum, antimony, barium, chromium, lead, manganese, thallium, and zinc were eliminated as COCs based on background comparisons.
- (2) The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA

TABLE 6 (Continued)
NAS ALAMEDA PARCEL 154
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
CARCINOGENIC RISKS

1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.

- (4) Cal/EPA risk estimates are presented in parentheses.

TABLE 7
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽⁹⁾	95 UCL ⁽⁹⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽⁹⁾	Chemical-Specific Hazard Index ⁽⁹⁾
Incidental Ingestion of Soil	1,2,4-Trichlorobenzene	1.1E+00	1.6E-05	1.0E-02 (1.0E-02)	1.6E-03 (1.6E-03)
	1,4-Dichlorobenzene	1.3E+00	1.8E-05	NA (2.3E-01)	ND (8.0E-05)
	2-Chlorophenol	1.1E+00	1.6E-05	5.0E-03 (5.0E-03)	3.1E-03 (3.1E-03)
	4,4'-DDT	7.8E-02	1.1E-06	5.0E-04 (5.0E-04)	2.2E-03 (2.2E-03)
	Acenaphthene	1.3E+00	1.9E-05	6.0E-02 (6.0E-02)	3.2E-04 (3.2E-04)
	Acenaphthylene	3.3E-01	4.7E-06	NA (NA)	ND (ND)
	Aldrin	5.5E-03	7.8E-08	3.0E-05 (3.0E-05)	2.6E-03 (2.6E-03)
	Alpha-chlordane	9.9E-04	1.4E-08	6.0E-05 (6.0E-05)	2.3E-04 (2.3E-04)
	Anthracene	3.5E-01	5.0E-06	3.0E-01 (3.0E-01)	1.7E-05 (1.7E-05)
	Antimony	6.2E+00	8.8E-05	4.0E-04 (4.0E-04)	2.2E-01 (2.2E-01)
	Aroclor 1016	3.1E-02	4.3E-07	7.0E-05 (7.0E-05)	6.2E-03 (6.2E-03)
	Barium	2.6E+02	3.7E-03	7.0E-02 (7.0E-02)	5.4E-02 (5.4E-02)
	Benzo(g,h,i)perylene	3.0E-01	4.2E-06	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.3E-06	2.0E-02 (2.0E-02)	6.7E-05 (6.7E-05)
	Cobalt	1.6E+01	2.3E-04	6.0E-02 (6.0E-02)	3.8E-03 (3.8E-03)
	Copper	2.0E+02	2.8E-03	3.7E-02 (3.7E-02)	7.6E-02 (7.6E-02)
	Dieldrin	6.0E-03	8.6E-08	5.0E-05 (5.0E-05)	1.7E-03 (1.7E-03)
	Diethyl phthalate	1.1E+00	1.6E-05	8.0E-01 (8.0E-01)	1.9E-05 (1.9E-05)
	Endosulfan I	1.3E-03	1.8E-08	6.0E-03 (6.0E-03)	3.1E-06 (3.1E-06)
	Endosulfan II	2.0E-03	2.9E-08	6.0E-03 (6.0E-03)	4.8E-06 (4.8E-06)
	Endrin	6.8E-03	9.6E-08	3.0E-04 (3.0E-04)	3.2E-04 (3.2E-04)
	Endrin Aldehyde	7.1E-03	1.0E-07	3.0E-04 (3.0E-04)	3.3E-04 (3.3E-04)
	Endrin ketone	7.1E-03	1.0E-07	3.0E-04 (3.0E-04)	3.3E-04 (3.3E-04)
	Fluoranthene	1.3E+00	1.8E-05	4.0E-02 (4.0E-02)	4.6E-04 (4.6E-04)
	Fluorene	1.2E-01	1.7E-06	4.0E-02 (4.0E-02)	4.2E-05 (4.2E-05)
	Gamma-chlordane	4.1E-03	5.8E-08	6.0E-05 (6.0E-05)	9.6E-04 (9.6E-04)
	Heptachlor	1.3E-03	1.9E-08	5.0E-04 (5.0E-04)	3.7E-05 (3.7E-05)
	Heptachlor epoxide	4.1E-03	5.8E-08	1.3E-05 (1.3E-05)	4.5E-03 (4.5E-03)
	Manganese	8.6E+02	1.2E-02	4.7E-02 (4.7E-02)	2.6E-01 (2.6E-01)
	Methoxychlor	2.4E-02	3.3E-07	5.0E-03 (5.0E-03)	6.7E-05 (6.7E-05)
	Molybdenum	1.4E+00	2.0E-05	5.0E-03 (5.0E-03)	3.9E-03 (3.9E-03)
	Nickel	2.5E+02	3.5E-03	2.0E-02 (2.0E-02)	1.8E-01 (1.8E-01)
	Phenanthrene	1.1E+00	1.6E-05	NA (NA)	ND (ND)
	Pyrene	1.8E+00	2.5E-05	3.0E-02 (3.0E-02)	8.5E-04 (8.5E-04)
	Selenium	8.0E-01	1.1E-05	5.0E-03 (5.0E-03)	2.3E-03 (2.3E-03)
	Thallium	8.6E-01	1.2E-05	8.0E-05 (8.0E-05)	1.5E-01 (1.5E-01)
	Vanadium	1.6E+02	2.3E-03	7.0E-03 (7.0E-03)	3.3E-01 (3.3E-01)
	Zinc	3.9E+02	5.5E-03	3.0E-01 (3.0E-01)	1.8E-02 (1.8E-02)
				Total HI	1.3E+00 (1.3E+00)
Dermal Contact with Soil	1,2,4-Trichlorobenzene	1.1E+00	7.5E-07	5.0E-03 (1.0E-02)	1.5E-04 (7.5E-04)
	1,4-Dichlorobenzene	1.3E+00	8.9E-07	NA (2.3E-01)	ND (3.9E-05)
	2-Chlorophenol	1.1E+00	7.5E-07	2.5E-03 (5.0E-03)	3.0E-04 (1.5E-03)
	4,4'-DDT	7.8E-02	5.4E-08	2.5E-04 (5.0E-04)	2.1E-04 (5.4E-04)
	Acenaphthene	1.3E+00	9.2E-07	3.0E-02 (6.0E-02)	3.1E-05 (2.3E-04)

TABLE 7 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Dermal Contact with Soil	Acenaphthylene	3.3E-01	2.3E-07	NA (NA)	ND (ND)
	Aldrin	5.5E-03	3.8E-09	1.5E-05 (3.0E-05)	2.5E-04 (6.3E-04)
	Alpha-chlordane	9.9E-04	6.8E-10	3.0E-05 (6.0E-05)	2.3E-05 (5.7E-05)
	Anthracene	3.5E-01	2.4E-07	1.5E-01 (3.0E-01)	1.6E-06 (1.2E-05)
	Antimony	6.2E+00	1.3E-05	8.0E-05 (4.0E-04)	5.3E-03 (1.1E-02)
	Aroclor 1016	3.1E-02	1.3E-07	3.5E-05 (7.0E-05)	3.6E-03 (4.5E-03)
	Barium	2.6E+02	1.8E-05	1.4E-02 (7.0E-02)	1.3E-03 (2.6E-03)
	Benzo(g,h,i)perylene	3.0E-01	2.1E-07	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	6.5E-08	1.0E-02 (2.0E-02)	6.5E-06 (3.3E-05)
	Cobalt	1.6E+01	1.1E-06	1.2E-02 (6.0E-02)	9.2E-05 (1.8E-04)
	Copper	2.0E+02	1.4E-05	7.4E-03 (3.7E-02)	1.8E-03 (3.7E-03)
	Dieldrin	6.0E-03	4.1E-09	2.5E-05 (5.0E-05)	1.7E-04 (4.1E-04)
	Diethyl phthalate	1.1E+00	7.5E-07	4.0E-01 (8.0E-01)	1.9E-06 (9.4E-06)
	Endosulfan I	1.3E-03	8.9E-10	3.0E-03 (6.0E-03)	3.0E-07 (7.4E-07)
	Endosulfan II	2.0E-03	1.4E-09	3.0E-03 (6.0E-03)	4.7E-07 (1.2E-06)
	Endrin	6.8E-03	4.7E-09	1.5E-04 (3.0E-04)	3.1E-05 (7.8E-05)
	Endrin Aldehyde	7.1E-03	4.9E-09	1.5E-04 (3.0E-04)	3.2E-05 (8.1E-05)
	Endrin ketone	7.1E-03	4.8E-09	1.5E-04 (3.0E-04)	3.2E-05 (8.1E-05)
	Fluoranthene	1.3E+00	8.8E-07	2.0E-02 (4.0E-02)	4.4E-05 (3.3E-04)
	Fluorene	1.2E-01	8.2E-08	2.0E-02 (4.0E-02)	4.1E-06 (3.1E-05)
	Gamma-chlordane	4.1E-03	2.8E-09	3.0E-05 (6.0E-05)	9.3E-05 (2.3E-04)
	Heptachlor	1.3E-03	9.1E-10	2.5E-04 (5.0E-04)	3.6E-06 (9.1E-06)
	Heptachlor epoxide	4.1E-03	2.8E-09	6.5E-06 (1.3E-05)	4.3E-04 (1.1E-03)
	Manganese	8.6E+02	5.9E-05	9.4E-03 (4.7E-02)	6.2E-03 (1.2E-02)
	Methoxychlor	2.4E-02	1.6E-08	2.5E-03 (5.0E-03)	6.4E-06 (1.6E-05)
	Molybdenum	1.4E+00	9.5E-08	1.0E-03 (5.0E-03)	9.5E-05 (1.9E-05)
	Nickel	2.5E+02	1.7E-05	4.0E-03 (2.0E-02)	4.3E-03 (8.6E-03)
	Phenanthrene	1.1E+00	7.5E-07	NA (NA)	ND (ND)
	Pyrene	1.8E+00	1.2E-06	1.5E-02 (3.0E-02)	8.2E-05 (6.2E-04)
	Selenium	8.0E-01	5.5E-08	1.0E-03 (5.0E-03)	5.5E-05 (1.1E-04)
	Thallium	8.6E-01	5.9E-08	1.6E-05 (8.0E-05)	3.7E-03 (7.3E-03)
	Vanadium	1.6E+02	1.1E-05	1.4E-03 (7.0E-03)	8.0E-03 (1.6E-02)
	Zinc	3.9E+02	2.7E-05	6.0E-02 (3.0E-01)	4.5E-04 (8.9E-04)
	Total HI				3.7E-02 (7.4E-02)
Inhalation of Particulates	1,2,4-Trichlorobenzene	1.1E+00	2.3E-10	5.7E-02 (5.7E-02)	4.0E-09 (4.0E-09)
	1,4-Dichlorobenzene	1.3E+00	2.7E-10	2.3E-01 (2.3E-01)	1.2E-09 (1.2E-09)
	2-Chlorophenol	1.1E+00	2.3E-10	NA (5.0E-03)	ND (4.6E-08)
	4,4'-DDT	7.8E-02	1.6E-11	NA (5.0E-04)	ND (3.2E-08)
	Acenaphthene	1.3E+00	2.8E-10	NA (6.0E-02)	ND (4.6E-09)
	Acenaphthylene	3.3E-01	6.8E-11	NA (NA)	ND (ND)
	Aldrin	5.5E-03	1.1E-12	NA (3.0E-05)	ND (3.8E-08)
	Alpha-chlordane	9.9E-04	2.1E-13	NA (6.0E-05)	ND (3.4E-09)
	Anthracene	3.5E-01	7.3E-11	NA (3.0E-01)	ND (2.4E-10)
	Antimony	6.2E+00	1.3E-09	NA (NA)	ND (ND)

TABLE 7 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Inhalation of Particulates	Aroclor 1016	3.1E-02	6.3E-12	NA (7.0E-05)	ND (9.0E-08)
	Barium	2.6E+02	5.5E-08	1.4E-04 (1.4E-04)	3.9E-04 (3.9E-04)
	Benzo(g,h,i)perylene	3.0E-01	6.2E-11	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.0E-11	NA (2.0E-02)	ND (9.9E-10)
	Cobalt	1.6E+01	3.3E-09	2.9E-04 (2.9E-04)	1.1E-05 (1.1E-05)
	Copper	2.0E+02	4.1E-08	NA (NA)	ND (ND)
	Dieldrin	6.0E-03	1.3E-12	NA (5.0E-05)	ND (2.5E-08)
	Diethyl phthalate	1.1E+00	2.3E-10	NA (8.0E-01)	ND (2.9E-10)
	Endosulfan I	1.3E-03	2.7E-13	NA (6.0E-03)	ND (4.5E-11)
	Endosulfan II	2.0E-03	4.2E-13	NA (6.0E-03)	ND (7.1E-11)
	Endrin	6.8E-03	1.4E-12	NA (3.0E-04)	ND (4.7E-09)
	Endrin Aldehyde	7.1E-03	1.5E-12	NA (3.0E-04)	ND (4.9E-09)
	Endrin ketone	7.1E-03	1.5E-12	NA (3.0E-04)	ND (4.9E-09)
	Fluoranthene	1.3E+00	2.7E-10	NA (4.0E-02)	ND (6.7E-09)
	Fluorene	1.2E-01	2.5E-11	NA (4.0E-02)	ND (6.2E-10)
	Gamma-chlordane	4.1E-03	8.4E-13	NA (6.0E-05)	ND (1.4E-08)
	Heptachlor	1.3E-03	2.7E-13	NA (5.0E-04)	ND (5.5E-10)
	Heptachlor epoxide	4.1E-03	8.5E-13	NA (1.3E-05)	ND (6.5E-08)
	Manganese	8.6E+02	1.8E-07	1.0E-05 (1.0E-05)	1.8E-02 (1.8E-02)
	Methoxyclor	2.4E-02	4.9E-12	NA (5.0E-03)	ND (9.8E-10)
	Molybdenum	1.4E+00	2.9E-10	NA (NA)	ND (ND)
	Nickel	2.5E+02	5.2E-08	NA (NA)	ND (ND)
	Phenanthrene	1.1E+00	2.3E-10	NA (NA)	ND (ND)
	Pyrene	1.8E+00	3.7E-10	NA (3.0E-02)	ND (1.2E-08)
	Selenium	8.0E-01	1.7E-10	NA (NA)	ND (ND)
	Thallium	8.6E-01	1.8E-10	NA (NA)	ND (ND)
	Vanadium	1.6E+02	3.4E-08	NA (NA)	ND (ND)
	Zinc	3.9E+02	8.1E-08	NA (NA)	ND (ND)
Total HI					1.8E-02 (1.8E-02)
Inhalation of VOCs from Soil	1,2,4-Trichlorobenzene	1.1E+00	7.2E-06	5.7E-02 (5.7E-02)	1.3E-04 (1.3E-04)
	1,4-Dichlorobenzene	1.3E+00	2.7E-05	2.3E-01 (2.3E-01)	1.2E-04 (1.2E-04)
	2-Chlorophenol	1.1E+00	3.1E-05	NA (5.0E-03)	ND (6.2E-03)
Total HI					2.5E-04 (6.5E-03)
Cumulative HI					1.4E+00 (1.4E+00)

Notes:

- 95 UCL 95 percent upper confidence limit
- mg/kg Milligrams per kilogram
- mg/kg-day Milligrams per kilogram per day
- HI Hazard index
- NA Not applicable
- ND Not determined
- RME Reasonable maximum exposure

TABLE 7 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
(4)	Cal/EPA HI estimates are presented in parentheses.

TABLE 8
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(c) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(d)	Chemical-Specific Hazard Index ^(d)
Incidental Ingestion of Soil	1,2,4-Trichlorobenzene	1.1E+00	1.0E-05	1.0E-02 (1.0E-02)	1.0E-03 (1.0E-03)
	1,4-Dichlorobenzene	1.3E+00	1.2E-05	NA (2.3E-01)	ND (5.3E-05)
	2-Chlorophenol	1.1E+00	1.0E-05	5.0E-03 (5.0E-03)	2.1E-03 (2.1E-03)
	4,4'-DDT	7.8E-02	7.4E-07	5.0E-04 (5.0E-04)	1.5E-03 (1.5E-03)
	Acenaphthene	1.3E+00	1.3E-05	6.0E-02 (6.0E-02)	2.1E-04 (2.1E-04)
	Acenaphthylene	3.3E-01	3.1E-06	NA (NA)	ND (ND)
	Aldrin	5.5E-03	5.2E-08	3.0E-05 (3.0E-05)	1.7E-03 (1.7E-03)
	Alpha-chlordane	9.9E-04	9.4E-09	6.0E-05 (6.0E-05)	1.6E-04 (1.6E-04)
	Anthracene	3.5E-01	3.3E-06	3.0E-01 (3.0E-01)	1.1E-05 (1.1E-05)
	Antimony	6.2E+00	5.9E-05	4.0E-04 (4.0E-04)	1.5E-01 (1.5E-01)
	Aroclor 1016	3.1E-02	2.9E-07	7.0E-05 (7.0E-05)	4.1E-03 (4.1E-03)
	Barium	2.6E+02	2.5E-03	7.0E-02 (7.0E-02)	3.6E-02 (3.6E-02)
	Benzo(g,h,i)perylene	3.0E-01	2.8E-06	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	9.0E-07	2.0E-02 (2.0E-02)	4.5E-05 (4.5E-05)
	Cobalt	1.6E+01	1.5E-04	6.0E-02 (6.0E-02)	2.5E-03 (2.5E-03)
	Copper	2.0E+02	1.9E-03	3.7E-02 (3.7E-02)	5.1E-02 (5.1E-02)
	Dieldrin	6.0E-03	5.7E-08	5.0E-05 (5.0E-05)	1.1E-03 (1.1E-03)
	Diethyl phthalate	1.1E+00	1.0E-05	8.0E-01 (8.0E-01)	1.3E-05 (1.3E-05)
	Endosulfan I	1.3E-03	1.2E-08	6.0E-03 (6.0E-03)	2.1E-06 (2.1E-06)
	Endosulfan II	2.0E-03	1.9E-08	6.0E-03 (6.0E-03)	3.2E-06 (3.2E-06)
	Endrin	6.8E-03	6.4E-08	3.0E-04 (3.0E-04)	2.1E-04 (2.1E-04)
	Endrin Aldehyde	7.1E-03	6.7E-08	3.0E-04 (3.0E-04)	2.2E-04 (2.2E-04)
	Endrin ketone	7.1E-03	6.7E-08	3.0E-04 (3.0E-04)	2.2E-04 (2.2E-04)
	Fluoranthene	1.3E+00	1.2E-05	4.0E-02 (4.0E-02)	3.0E-04 (3.0E-04)
	Fluorene	1.2E-01	1.1E-06	4.0E-02 (4.0E-02)	2.8E-05 (2.8E-05)
	Gamma-chlordane	4.1E-03	3.8E-08	6.0E-05 (6.0E-05)	6.4E-04 (6.4E-04)
	Heptachlor	1.3E-03	1.3E-08	5.0E-04 (5.0E-04)	2.5E-05 (2.5E-05)
	Heptachlor epoxide	4.1E-03	3.9E-08	1.3E-05 (1.3E-05)	3.0E-03 (3.0E-03)
	Manganese	8.6E+02	8.1E-03	4.7E-02 (4.7E-02)	1.7E-01 (1.7E-01)
	Methoxychlor	2.4E-02	2.2E-07	5.0E-03 (5.0E-03)	4.5E-05 (4.5E-05)
	Molybdenum	1.4E+00	1.3E-05	5.0E-03 (5.0E-03)	2.6E-03 (2.6E-03)
	Nickel	2.5E+02	2.4E-03	2.0E-02 (2.0E-02)	1.2E-01 (1.2E-01)
	Phenanthrene	1.1E+00	1.0E-05	NA (NA)	ND (ND)
	Pyrene	1.8E+00	1.7E-05	3.0E-02 (3.0E-02)	5.7E-04 (5.7E-04)
	Selenium	8.0E-01	7.6E-06	5.0E-03 (5.0E-03)	1.5E-03 (1.5E-03)
	Thallium	8.6E-01	8.1E-06	8.0E-05 (8.0E-05)	1.0E-01 (1.0E-01)
	Vanadium	1.6E+02	1.5E-03	7.0E-03 (7.0E-03)	2.2E-01 (2.2E-01)
	Zinc	3.9E+02	3.7E-03	3.0E-01 (3.0E-01)	1.2E-02 (1.2E-02)
	Total HI				8.8E-01 (8.8E-01)
Dermal Contact with Soil	1,2,4-Trichlorobenzene	1.1E+00	4.0E-08	5.0E-03 (1.0E-02)	8.1E-06 (4.0E-05)
	1,4-Dichlorobenzene	1.3E+00	4.8E-08	NA (2.3E-01)	ND (2.1E-06)
	2-Chlorophenol	1.1E+00	4.0E-08	2.5E-03 (5.0E-03)	1.6E-05 (8.1E-05)
	4,4'-DDT	7.8E-02	2.9E-09	2.5E-04 (5.0E-04)	1.1E-05 (2.9E-05)
	Acenaphthene	1.3E+00	4.9E-08	3.0E-02 (6.0E-02)	1.6E-06 (1.2E-05)

TABLE 8 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽⁹⁾	95 ⁽¹⁰⁾ UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Dermal Contact with Soil	Acenaphthylene	3.3E-01	1.2E-08	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.0E-10	1.5E-05 (3.0E-05)	1.3E-05 (3.4E-05)
	Alpha-chlordanne	9.9E-04	3.6E-11	3.0E-05 (6.0E-05)	1.2E-06 (3.0E-06)
	Anthracene	3.5E-01	1.3E-08	1.5E-01 (3.0E-01)	8.5E-08 (6.4E-07)
	Antimony	6.2E+00	6.8E-07	8.0E-05 (4.0E-04)	2.8E-04 (5.7E-04)
	Aroclor 1016	3.1E-02	6.7E-09	3.5E-05 (7.0E-05)	1.9E-04 (2.4E-04)
	Barium	2.6E+02	9.7E-07	1.4E-02 (7.0E-02)	6.9E-05 (1.4E-04)
	Benzo(g,h,i)perylene	3.0E-01	1.1E-08	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	3.5E-09	1.0E-02 (2.0E-02)	3.5E-07 (1.7E-06)
	Cobalt	1.6E+01	5.9E-08	1.2E-02 (6.0E-02)	4.9E-06 (9.8E-06)
	Copper	2.0E+02	7.3E-07	7.4E-03 (3.7E-02)	9.8E-05 (2.0E-04)
	Dieldrin	6.0E-03	2.2E-10	2.5E-05 (5.0E-05)	8.9E-06 (2.2E-05)
	Diethyl phthalate	1.1E+00	4.0E-08	4.0E-01 (8.0E-01)	1.0E-07 (5.0E-07)
	Endosulfan I	1.3E-03	4.8E-11	3.0E-03 (6.0E-03)	1.6E-08 (4.0E-08)
	Endosulfan II	2.0E-03	7.5E-11	3.0E-03 (6.0E-03)	2.5E-08 (6.2E-08)
	Endrin	6.8E-03	2.5E-10	1.5E-04 (3.0E-04)	1.7E-06 (4.1E-06)
	Endrin Aldehyde	7.1E-03	2.6E-10	1.5E-04 (3.0E-04)	1.7E-06 (4.3E-06)
	Endrin ketone	7.1E-03	2.6E-10	1.5E-04 (3.0E-04)	1.7E-06 (4.3E-06)
	Fluoranthene	1.3E+00	4.7E-08	2.0E-02 (4.0E-02)	2.4E-06 (1.8E-05)
	Fluorene	1.2E-01	4.4E-09	2.0E-02 (4.0E-02)	2.2E-07 (1.6E-06)
	Gamma-chlordanne	4.1E-03	1.5E-10	3.0E-05 (6.0E-05)	5.0E-06 (1.2E-05)
	Heptachlor	1.3E-03	4.8E-11	2.5E-04 (5.0E-04)	1.9E-07 (4.8E-07)
	Heptachlor epoxide	4.1E-03	1.5E-10	6.5E-06 (1.3E-05)	2.3E-05 (5.8E-05)
	Manganese	8.6E+02	3.1E-06	9.4E-03 (4.7E-02)	3.3E-04 (6.7E-04)
	Methoxychlor	2.4E-02	8.6E-10	2.5E-03 (5.0E-03)	3.4E-07 (8.6E-07)
	Molybdenum	1.4E+00	5.1E-09	1.0E-03 (5.0E-03)	5.1E-06 (1.0E-06)
	Nickel	2.5E+02	9.2E-07	4.0E-03 (2.0E-02)	2.3E-04 (4.6E-04)
	Phenanthrene	1.1E+00	4.0E-08	NA (NA)	ND (ND)
	Pyrene	1.8E+00	6.6E-08	1.5E-02 (3.0E-02)	4.4E-06 (3.3E-05)
	Selenium	8.0E-01	2.9E-09	1.0E-03 (5.0E-03)	2.9E-06 (5.9E-06)
	Thallium	8.6E-01	3.1E-09	1.6E-05 (8.0E-05)	2.0E-04 (3.9E-04)
	Vanadium	1.6E+02	6.0E-07	1.4E-03 (7.0E-03)	4.3E-04 (8.6E-04)
	Zinc	3.9E+02	1.4E-06	6.0E-02 (3.0E-01)	2.4E-05 (4.8E-05)
				Total HI	2.0E-03 (4.0E-03)
Inhalation of Particulates	1,2,4-Trichlorobenzene	1.1E+00	1.1E-10	5.7E-02 (5.7E-02)	2.0E-09 (2.0E-09)
	1,4-Dichlorobenzene	1.3E+00	1.4E-10	2.3E-01 (2.3E-01)	5.9E-10 (5.9E-10)
	2-Chlorophenol	1.1E+00	1.1E-10	NA (5.0E-03)	ND (2.3E-08)
	4,4'-DDT	7.8E-02	8.1E-12	NA (5.0E-04)	ND (1.6E-08)
	Acenaphthene	1.3E+00	1.4E-10	NA (6.0E-02)	ND (2.3E-09)
	Acenaphthylene	3.3E-01	3.4E-11	NA (NA)	ND (ND)
	Aldrin	5.5E-03	5.7E-13	NA (3.0E-05)	ND (1.9E-08)
	Alpha-chlordanne	9.9E-04	1.0E-13	NA (6.0E-05)	ND (1.7E-09)
	Anthracene	3.5E-01	3.6E-11	NA (3.0E-01)	ND (1.2E-10)
	Antimony	6.2E+00	6.5E-10	NA (NA)	ND (ND)

TABLE 8 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Inhalation of Particulates	Aroclor 1016	3.1E-02	3.2E-12	NA (7.0E-05)	ND (4.5E-08)
	Barium	2.6E+02	2.8E-08	1.4E-04 (1.4E-04)	2.0E-04 (2.0E-04)
	Benzo(g,h,i)perylene	3.0E-01	3.1E-11	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	9.9E-12	NA (2.0E-02)	ND (4.9E-10)
	Cobalt	1.6E+01	1.7E-09	2.9E-04 (2.9E-04)	5.8E-06 (5.8E-06)
	Copper	2.0E+02	2.1E-08	NA (NA)	ND (ND)
	Dieldrin	6.0E-03	6.3E-13	NA (5.0E-05)	ND (1.3E-08)
	Diethyl phthalate	1.1E+00	1.1E-10	NA (8.0E-01)	ND (1.4E-10)
	Endosulfan I	1.3E-03	1.4E-13	NA (6.0E-03)	ND (2.3E-11)
	Endosulfan II	2.0E-03	2.1E-13	NA (NA)	ND (ND)
	Endrin	6.8E-03	7.1E-13	NA (3.0E-04)	ND (2.4E-09)
	Endrin Aldehyde	7.1E-03	7.4E-13	NA (3.0E-04)	ND (2.5E-09)
	Endrin ketone	7.1E-03	7.3E-13	NA (3.0E-04)	ND (2.4E-09)
	Fluoranthene	1.3E+00	1.3E-10	NA (4.0E-02)	ND (3.3E-09)
	Fluorene	1.2E-01	1.2E-11	NA (4.0E-02)	ND (3.1E-10)
	Gamma-chlordane	4.1E-03	4.2E-13	NA (6.0E-05)	ND (7.0E-09)
	Heptachlor	1.3E-03	1.4E-13	NA (5.0E-04)	ND (2.8E-10)
	Heptachlor epoxide	4.1E-03	4.3E-13	NA (1.3E-05)	ND (3.3E-08)
	Manganese	8.6E+02	8.9E-08	1.0E-05 (1.0E-05)	8.9E-03 (8.9E-03)
	Methoxychlor	2.4E-02	2.4E-12	NA (5.0E-03)	ND (4.9E-10)
	Molybdenum	1.4E+00	1.4E-10	NA (NA)	ND (ND)
	Nickel	2.5E+02	2.6E-08	NA (NA)	ND (ND)
	Phenanthrene	1.1E+00	1.1E-10	NA (NA)	ND (ND)
	Pyrene	1.8E+00	1.9E-10	NA (3.0E-02)	ND (6.2E-09)
	Selenium	8.0E-01	8.4E-11	NA (NA)	ND (ND)
	Thallium	8.6E-01	8.9E-11	NA (NA)	ND (ND)
	Vanadium	1.6E+02	1.7E-08	NA (NA)	ND (ND)
	Zinc	3.9E+02	4.1E-08	NA (NA)	ND (ND)
Total HI					9.1E-03 (9.1E-03)
Inhalation of VOCs	1,2,4-Trichlorobenzene	1.1E+00	3.6E-06	5.7E-02 (5.7E-02)	6.3E-05 (6.3E-05)
	1,4-Dichlorobenzene	1.3E+00	1.4E-05	2.3E-01 (2.3E-01)	6.0E-05 (6.0E-05)
	2-Chlorophenol	1.1E+00	1.6E-05	NA (5.0E-03)	ND (3.1E-03)
Total HI					1.2E-04 (3.2E-03)
Cumulative HI					8.9E-01 (9.0E-01)

Notes:

- 95 UCL 95 percent upper confidence limit
- mg/kg Milligrams per kilogram
- mg/kg-day Milligrams per kilogram per day
- HI Hazard index
- NA Not applicable
- ND Not determined
- CTE Central tendency exposure

TABLE 8 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
(4)	Cal/EPA HI estimates are presented in parentheses.

TABLE 9
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95% UCL ^(c) (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(d)	Chemical-Specific Hazard Index ^(e)
Incidental Ingestion of Groundwater	1,1,1-Trichloroethane	3.0E-03	8.2E-05	9.0E-02 (9.0E-02)	9.1E-04 (9.1E-04)
	2-Methylnaphthalene	3.0E-03	8.2E-05	NA (NA)	ND (ND)
	4,4'-DDT	6.2E-04	1.7E-05	5.0E-04 (5.0E-04)	3.4E-02 (3.4E-02)
	Acetone	2.3E-02	6.3E-04	1.0E-01 (1.0E-01)	6.3E-03 (6.3E-03)
	Aldrin	9.9E-05	2.7E-06	3.0E-05 (3.0E-05)	9.0E-02 (9.0E-02)
	Arsenic	8.0E-02	2.2E-03	3.0E-04 (3.0E-04)	7.3E+00 (7.3E+00)
	Bis(2-ethylhexyl)phthalate	2.0E-03	5.5E-05	2.0E-02 (2.0E-02)	2.7E-03 (2.7E-03)
	Cobalt	1.6E-02	4.5E-04	6.0E-02 (6.0E-02)	7.5E-03 (7.5E-03)
	Copper	4.1E-01	1.1E-02	3.7E-02 (3.7E-02)	3.0E-01 (3.0E-01)
	Di(n)butyl phthalate	7.0E-03	1.9E-04	1.0E-01 (1.0E-01)	1.9E-03 (1.9E-03)
	Endosulfan II	2.4E-05	6.6E-07	6.0E-03 (6.0E-03)	1.1E-04 (1.1E-04)
	Endrin	2.2E-04	6.0E-06	3.0E-04 (3.0E-04)	2.0E-02 (2.0E-02)
	Endrin ketone	1.3E-05	3.6E-07	3.0E-04 (3.0E-04)	1.2E-03 (1.2E-03)
	Gamma-chlordane	4.6E-05	1.3E-06	6.0E-05 (6.0E-05)	2.1E-02 (2.1E-02)
	Heptachlor epoxide	2.8E-05	7.7E-07	1.3E-05 (1.3E-05)	5.9E-02 (5.9E-02)
	Mercury	4.6E-04	1.3E-05	3.0E-04 (3.0E-04)	4.2E-02 (4.2E-02)
	Methyl ethyl ketone	2.0E-03	5.5E-05	6.0E-01 (6.0E-01)	9.1E-05 (9.1E-05)
	Molybdenum	6.8E-02	1.9E-03	5.0E-03 (5.0E-03)	3.7E-01 (3.7E-01)
	Naphthalene	3.0E-03	8.2E-05	4.0E-02 (4.0E-02)	2.1E-03 (2.1E-03)
	Nickel	2.7E-01	7.4E-03	2.0E-02 (2.0E-02)	3.7E-01 (3.7E-01)
	Pyrene	3.0E-03	8.2E-05	3.0E-02 (3.0E-02)	2.7E-03 (2.7E-03)
	Selenium	5.9E-03	1.6E-04	5.0E-03 (5.0E-03)	3.2E-02 (3.2E-02)
	Vanadium	1.2E-01	3.3E-03	7.0E-03 (7.0E-03)	4.7E-01 (4.7E-01)
				Total HI	8.7E+00 (8.7E+00)
Dermal Contact with Groundwater	1,1,1-Trichloroethane	3.0E-03	1.3E-07	7.2E-02 (9.0E-02)	1.8E-06 (1.4E-06)
	2-Methylnaphthalene	3.0E-03	1.3E-07	NA (NA)	ND (ND)
	4,4'-DDT	6.2E-04	2.6E-08	2.5E-04 (5.0E-04)	1.1E-04 (5.3E-05)
	Acetone	2.3E-02	9.8E-07	8.0E-02 (1.0E-01)	1.2E-05 (9.8E-06)
	Aldrin	9.9E-05	4.2E-09	1.5E-05 (3.0E-05)	2.8E-04 (1.4E-04)
	Arsenic	8.0E-02	3.4E-06	6.0E-05 (3.0E-04)	5.7E-02 (1.1E-02)
	Bis(2-ethylhexyl)phthalate	2.0E-03	8.5E-08	1.0E-02 (2.0E-02)	8.5E-06 (4.3E-06)
	Cobalt	1.6E-02	7.0E-07	1.2E-02 (6.0E-02)	5.8E-05 (1.2E-05)
	Copper	4.1E-01	1.7E-05	7.4E-03 (3.7E-02)	2.3E-03 (4.7E-04)
	Di(n)butyl phthalate	7.0E-03	3.0E-07	5.0E-02 (1.0E-01)	6.0E-06 (3.0E-06)
	Endosulfan II	2.4E-05	1.0E-09	3.0E-03 (6.0E-03)	3.4E-07 (1.7E-07)
	Endrin	2.2E-04	9.4E-09	1.5E-04 (3.0E-04)	6.2E-05 (3.1E-05)
	Endrin ketone	1.3E-05	5.5E-10	1.5E-04 (3.0E-04)	3.7E-06 (1.8E-06)
	Gamma-chlordane	4.6E-05	2.0E-09	3.0E-05 (6.0E-05)	6.5E-05 (3.3E-05)
	Heptachlor epoxide	2.8E-05	1.2E-09	6.5E-06 (1.3E-05)	1.8E-04 (9.2E-05)
	Mercury	4.6E-04	2.0E-08	6.0E-05 (3.0E-04)	3.3E-04 (6.5E-05)
	Methyl ethyl ketone	2.0E-03	8.5E-08	4.8E-01 (6.0E-01)	1.8E-07 (1.4E-07)
	Molybdenum	6.8E-02	2.9E-06	1.0E-03 (5.0E-03)	2.9E-03 (5.8E-04)
	Naphthalene	3.0E-03	1.3E-07	2.0E-02 (4.0E-02)	6.4E-06 (3.2E-06)

TABLE 9 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Dermal Contact with Groundwater	Nickel	2.7E-01	1.1E-05	4.0E-03 (2.0E-02)	2.9E-03 (5.7E-04)
	Pyrene	3.0E-03	- 1.3E-07	1.5E-02 (3.0E-02)	8.5E-06 (4.3E-06)
	Selenium	5.9E-03	2.5E-07	1.0E-03 (5.0E-03)	2.5E-04 (5.0E-05)
	Vanadium	1.2E-01	5.1E-06	1.4E-03 (7.0E-03)	3.6E-03 (7.3E-04)
				Total HI	6.6E-02 (1.4E-02)
Inhalation of VOCs	1,1,1-Trichloroethane	3.0E-03	4.1E-04	2.9E-01 (2.9E-01)	1.4E-03 (1.4E-03)
	Acetone	2.3E-02	3.1E-03	NA (1.0E-01)	ND (3.1E-02)
	Methyl ethyl ketone	2.0E-03	2.7E-04	2.9E-01 (2.9E-01)	9.4E-04 (9.4E-04)
				Total HI	2.4E-03 (3.4E-02)
				Cumulative HI	8.8E+00 (8.8E+00)

Notes:

95 UCL 95 percent upper confidence limit
 mg/L Milligrams per liter
 mg/kg-day Milligrams per kilogram per day
 HI Hazard index
 NA Not applicable
 ND Not determined
 RME Reasonable maximum exposure
 VOCs Volatile organic chemicals
 COC Chemical of concern

- (1) Aluminum, antimony, barium, cadmium, chromium, lead, manganese, thallium, and zinc were eliminated as COCs based on background comparisons.
- (2) The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
- (4) Cal/EPA HI estimates are presented in parentheses.

TABLE 10
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Incidental Ingestion of Groundwater	1,1,1-Trichloroethane	3.0E-03	3.8E-05	9.0E-02 (9.0E-02)	4.3E-04 (4.3E-04)
	2-Methylnaphthalene	3.0E-03	3.8E-05	NA (NA)	ND (ND)
	4,4'-DDT	6.2E-04	7.9E-06	5.0E-04 (5.0E-04)	1.6E-02 (1.6E-02)
	Acetone	2.3E-02	2.9E-04	1.0E-01 (1.0E-01)	2.9E-03 (2.9E-03)
	Aldrin	9.9E-05	1.3E-06	3.0E-05 (3.0E-05)	4.2E-02 (4.2E-02)
	Arsenic	8.0E-02	1.0E-03	3.0E-04 (3.0E-04)	3.4E+00 (3.4E+00)
	Bis(2-ethylhexyl)phthalate	2.0E-03	2.6E-05	2.0E-02 (2.0E-02)	1.3E-03 (1.3E-03)
	Cobalt	1.6E-02	2.1E-04	6.0E-02 (6.0E-02)	3.5E-03 (3.5E-03)
	Copper	4.1E-01	5.2E-03	3.7E-02 (3.7E-02)	1.4E-01 (1.4E-01)
	Di(n)butyl phthalate	7.0E-03	9.0E-05	1.0E-01 (1.0E-01)	9.0E-04 (9.0E-04)
	Endosulfan II	2.4E-05	3.1E-07	6.0E-03 (6.0E-03)	5.1E-05 (5.1E-05)
	Endrin	2.2E-04	2.8E-06	3.0E-04 (3.0E-04)	9.4E-03 (9.4E-03)
	Endrin ketone	1.3E-05	1.7E-07	3.0E-04 (3.0E-04)	5.6E-04 (5.6E-04)
	Gamma-chlordane	4.6E-05	5.9E-07	6.0E-05 (6.0E-05)	9.8E-03 (9.8E-03)
	Heptachlor epoxide	2.8E-05	3.6E-07	1.3E-05 (1.3E-05)	2.8E-02 (2.8E-02)
	Mercury	4.6E-04	5.9E-06	3.0E-04 (3.0E-04)	2.0E-02 (2.0E-02)
	Methyl ethyl ketone	2.0E-03	2.6E-05	6.0E-01 (6.0E-01)	4.3E-05 (4.3E-05)
	Molybdenum	6.8E-02	8.7E-04	5.0E-03 (5.0E-03)	1.7E-01 (1.7E-01)
	Naphthalene	3.0E-03	3.8E-05	4.0E-02 (4.0E-02)	9.6E-04 (9.6E-04)
	Nickel	2.7E-01	3.5E-03	2.0E-02 (2.0E-02)	1.7E-01 (1.7E-01)
	Pyrene	3.0E-03	3.8E-05	3.0E-02 (3.0E-02)	1.3E-03 (1.3E-03)
	Selenium	5.9E-03	7.6E-05	5.0E-03 (5.0E-03)	1.5E-02 (1.5E-02)
	Vanadium	1.2E-01	1.5E-03	7.0E-03 (7.0E-03)	2.2E-01 (2.2E-01)
Total HI					4.1E+00 (4.1E+00)
Dermal Contact with Soil	1,1,1-Trichloroethane	3.0E-03	5.1E-08	7.2E-02 (9.0E-02)	7.1E-07 (5.7E-07)
	2-Methylnaphthalene	3.0E-03	5.1E-08	NA (NA)	ND (ND)
	4,4'-DDT	6.2E-04	1.1E-08	2.5E-04 (5.0E-04)	4.2E-05 (2.1E-05)
	Acetone	2.3E-02	3.9E-07	8.0E-02 (1.0E-01)	4.9E-06 (3.9E-06)
	Aldrin	9.9E-05	1.7E-09	1.5E-05 (3.0E-05)	1.1E-04 (5.6E-05)
	Arsenic	8.0E-02	1.4E-06	6.0E-05 (3.0E-04)	2.3E-02 (4.6E-03)
	Bis(2-ethylhexyl)phthalate	2.0E-03	3.4E-08	1.0E-02 (2.0E-02)	3.4E-06 (1.7E-06)
	Cobalt	1.6E-02	2.8E-07	1.2E-02 (6.0E-02)	2.3E-05 (4.7E-06)
	Copper	4.1E-01	6.9E-06	7.4E-03 (3.7E-02)	9.4E-04 (1.9E-04)
	Di(n)butyl phthalate	7.0E-03	1.2E-07	5.0E-02 (1.0E-01)	2.4E-06 (1.2E-06)
	Endosulfan II	2.4E-05	4.1E-10	3.0E-03 (6.0E-03)	1.4E-07 (6.8E-08)
	Endrin	2.2E-04	3.8E-09	1.5E-04 (3.0E-04)	2.5E-05 (1.3E-05)
	Endrin ketone	1.3E-05	2.2E-10	1.5E-04 (3.0E-04)	1.5E-06 (7.4E-07)
	Gamma-chlordane	4.6E-05	7.8E-10	3.0E-05 (6.0E-05)	2.6E-05 (1.3E-05)
	Heptachlor epoxide	2.8E-05	4.8E-10	6.5E-06 (1.3E-05)	7.3E-05 (3.7E-05)
	Mercury	4.6E-04	7.8E-09	6.0E-05 (3.0E-04)	1.3E-04 (2.6E-05)
	Methyl ethyl ketone	2.0E-03	3.4E-08	4.8E-01 (6.0E-01)	7.1E-08 (5.7E-08)
	Molybdenum	6.8E-02	1.2E-06	1.0E-03 (5.0E-03)	1.2E-03 (2.3E-04)
	Naphthalene	3.0E-03	5.1E-08	2.0E-02 (4.0E-02)	2.6E-06 (1.3E-06)

TABLE 10 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
RESIDENTIAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Dermal Contact with Soil	Nickel	2.7E-01	4.6E-06	4.0E-03 (2.0E-02)	1.2E-03 (2.3E-04)
	Pyrene	3.0E-03	5.1E-08	1.5E-02 (3.0E-02)	3.4E-06 (1.7E-06)
	Selenium	5.9E-03	1.0E-07	1.0E-03 (5.0E-03)	1.0E-04 (2.0E-05)
	Vanadium	1.2E-01	2.0E-06	1.4E-03 (7.0E-03)	1.5E-03 (2.9E-04)
				Total HI	2.7E-02 (5.4E-03)
Inhalation of VOCs	1,1,1-Trichloroethane	3.0E-03	2.1E-04	2.9E-01 (2.9E-01)	7.1E-04 (7.1E-04)
	Acetone	2.3E-02	1.6E-03	NA (1.0E-01)	ND (1.6E-02)
	Methyl ethyl ketone	2.0E-03	1.4E-04	2.9E-01 (2.9E-01)	4.7E-04 (4.7E-04)
				Total HI	1.2E-03 (1.7E-02)
				Cumulative HI	4.1E+00 (4.1E+00)

Notes:

95 UCL	95 percent upper confidence limit
mg/L	Milligrams per liter
mg/kg-day	Milligrams per kilogram per day
HI	Hazard index
NA	Not applicable
ND	Not determined
CTE	Central tendency exposure
VOCs	Volatile organic chemicals
COC	Chemical of concern

- (1) Aluminum, antimony, barium, cadmium, chromium, lead, manganese, thallium, and zinc were eliminated as COCs based on background comparisons.
- (2) The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
- (4) Cal/EPA HI estimates are presented in parentheses.

TABLE 11
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ⁽⁹⁾	95% UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Risk ⁽⁴⁾
Incidental Ingestion of Soil	1,4-Dichlorobenzene	1.3E+00	8.2E-08	2.4E-02 (4.0E-02)	2.0E-09 (3.3E-09)
	4,4'-DDD	8.2E-03	5.2E-10	2.4E-01 (2.4E-01)	1.3E-10 (1.3E-10)
	4,4'-DDE	4.1E-03	2.6E-10	3.4E-01 (3.4E-01)	8.9E-11 (8.9E-11)
	4,4'-DDT	7.8E-02	5.0E-09	3.4E-01 (3.4E-01)	1.7E-09 (1.7E-09)
	Aldrin	5.5E-03	3.5E-10	1.7E+01 (1.7E+01)	5.9E-09 (5.9E-09)
	Alpha-chlordane	9.9E-04	6.3E-11	1.3E+00 (1.2E+00)	8.2E-11 (7.5E-11)
	Aroclor 1016	3.1E-02	1.9E-09	NA (7.0E-02)	ND (1.4E-10)
	Aroclor-1260	1.0E-01	6.7E-09	2.0E+00 (2.0E+00)	1.3E-08 (1.3E-08)
	Benzo(a)anthracene	1.2E+00	7.6E-08	7.3E-01 (1.2E+00)	5.6E-08 (9.1E-08)
	Benzo(a)pyrene	1.2E+00	7.6E-08	7.3E+00 (1.2E+01)	5.6E-07 (9.1E-07)
	Benzo(b)fluoranthene	1.8E+00	1.1E-07	7.3E-01 (1.2E+00)	8.3E-08 (1.4E-07)
	Benzo(k)fluoranthene	4.4E-01	2.8E-08	7.3E-02 (1.2E+00)	2.0E-09 (3.3E-08)
	Bis(2-ethylhexyl)phthalate	9.5E-02	6.0E-09	1.4E-02 (8.4E-03)	8.4E-11 (5.1E-11)
	Carbazole	9.7E-02	6.2E-09	2.0E-02 (2.0E-02)	1.2E-10 (1.2E-10)
	Chromium	2.6E+02	1.7E-05	NA (NA)	ND (ND)
	Chrysene	1.1E+00	7.0E-08	7.3E-03 (1.2E-01)	5.1E-10 (8.4E-09)
	Dibenz(a,h)anthracene	1.1E-01	7.0E-09	7.3E+00 (4.1E+00)	5.1E-08 (2.9E-08)
	Dieldrin	6.0E-03	3.8E-10	1.6E+01 (1.6E+01)	6.1E-09 (6.1E-09)
	Gamma-chlordane	4.1E-03	2.6E-10	1.3E+00 (1.2E+00)	3.4E-10 (3.1E-10)
	HCH (alpha)	6.2E-04	3.9E-11	6.3E+00 (6.3E+00)	2.5E-10 (2.5E-10)
	Heptachlor	1.3E-03	8.4E-11	4.5E+00 (5.7E+00)	3.8E-10 (4.8E-10)
	Heptachlor epoxide	4.1E-03	2.6E-10	9.1E+00 (1.3E+01)	2.4E-09 (3.4E-09)
	Indeno(1,2,3-cd)pyrene	3.1E-01	2.0E-08	7.3E-01 (1.2E+00)	1.4E-08 (2.4E-08)
	Nickel	2.5E+02	1.6E-05	NA (NA)	ND (ND)
	Total Risk			8.0E-07 (1.3E-06)	
Dermal Contact with Soil	1,4-Dichlorobenzene	1.3E+00	2.6E-07	3.0E-02 (4.0E-02)	7.9E-09 (1.1E-07)
	4,4'-DDD	8.2E-03	1.7E-09	4.8E-01 (2.4E-01)	8.0E-10 (2.0E-09)
	4,4'-DDE	4.1E-03	8.4E-10	6.8E-01 (3.4E-01)	5.7E-10 (1.4E-09)
	4,4'-DDT	7.8E-02	1.6E-08	6.8E-01 (3.4E-01)	1.1E-08 (2.7E-08)
	Aldrin	5.5E-03	1.1E-09	3.4E+01 (1.7E+01)	3.8E-08 (9.5E-08)
	Alpha-chlordane	9.9E-04	2.0E-10	2.6E+00 (1.2E+00)	5.2E-10 (1.2E-09)
	Aroclor 1016	3.1E-02	3.7E-08	NA (7.0E-02)	ND (6.5E-09)
	Aroclor-1260	1.0E-01	1.3E-07	4.0E+00 (2.0E+00)	5.1E-07 (6.4E-07)
	Benzo(a)anthracene	1.2E+00	2.4E-07	1.5E+00 (1.2E+00)	3.6E-07 (4.4E-06)
	Benzo(a)pyrene	1.2E+00	2.4E-07	1.5E+01 (1.2E+01)	3.6E-06 (4.4E-05)
	Benzo(b)fluoranthene	1.8E+00	3.7E-07	1.5E+00 (1.2E+00)	5.3E-07 (6.6E-06)
	Benzo(k)fluoranthene	4.4E-01	8.9E-08	1.5E-01 (1.2E+00)	1.3E-08 (1.6E-06)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.9E-08	2.8E-02 (8.4E-03)	5.4E-10 (1.6E-09)
	Carbazole	9.7E-02	2.0E-08	4.0E-02 (2.0E-02)	7.9E-10 (3.9E-09)
	Chromium	2.6E+02	5.4E-06	NA (NA)	ND (ND)
	Chrysene	1.1E+00	2.2E-07	1.5E-02 (1.2E-01)	3.3E-09 (4.0E-07)
	Dibenz(a,h)anthracene	1.1E-01	2.2E-08	1.5E+01 (4.1E+00)	3.3E-07 (1.4E-06)
	Dieldrin	6.0E-03	1.2E-09	3.2E+01 (1.6E+01)	3.9E-08 (9.8E-08)

TABLE 11 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Dermal Contact with Soil	Gamma-chlordane	4.1E-03	8.2E-10	2.6E+00 (1.2E+00)	2.1E-09 (4.9E-09)
	HCH (alpha)	6.2E-04	1.3E-10	1.3E+01 (6.3E+00)	1.6E-09 (4.0E-09)
	Heptachlor	1.3E-03	2.7E-10	9.0E+00 (5.7E+00)	2.4E-09 (7.7E-09)
	Heptachlor epoxide	4.1E-03	8.3E-10	1.8E+01 (1.3E+01)	1.5E-08 (5.4E-08)
	Indeno(1,2,3-cd)pyrene	3.1E-01	6.3E-08	1.5E+00 (1.2E+00)	9.2E-08 (1.1E-06)
	Nickel	2.5E+02	5.1E-06	NA (NA)	ND (ND)
Total Risk					5.5E-06 (6.0E-05)
Inhalation of Particulates	1,4-Dichlorobenzene	1.3E+00	1.3E-11	NA (4.0E-02)	ND (5.0E-13)
	4,4'-DDD	8.2E-03	8.0E-14	NA (2.4E-01)	ND (1.9E-14)
	4,4'-DDE	4.1E-03	4.0E-14	NA (3.4E-01)	ND (1.4E-14)
	4,4'-DDT	7.8E-02	7.5E-13	3.4E-01 (3.4E-01)	2.6E-13 (2.6E-13)
	Aldrin	5.5E-03	5.3E-14	1.7E+01 (1.7E+01)	9.0E-13 (9.0E-13)
	Alpha-chlordane	9.9E-04	9.6E-15	1.3E+00 (1.2E+00)	1.2E-14 (1.1E-14)
	Aroclor 1016	3.1E-02	2.9E-13	NA (7.0E-02)	ND (2.1E-14)
	Aroclor-1260	1.0E-01	1.0E-12	NA (2.0E+00)	ND (2.0E-12)
	Benzo(a)anthracene	1.2E+00	1.2E-11	NA (3.9E-01)	ND (4.5E-12)
	Benzo(a)pyrene	1.2E+00	1.2E-11	NA (3.9E+00)	ND (4.5E-11)
	Benzo(b)fluoranthene	1.8E+00	1.7E-11	NA (3.9E-01)	ND (6.8E-12)
	Benzo(k)fluoranthene	4.4E-01	4.2E-12	NA (3.9E-01)	ND (1.7E-12)
	Bis(2-ethylhexyl)phthalate	9.5E-02	9.2E-13	NA (8.4E-03)	ND (7.7E-15)
	Carbazole	9.7E-02	9.4E-13	NA (2.0E-02)	ND (1.9E-14)
	Chromium	2.6E+02	2.6E-09	4.2E+01 (4.2E+01)	1.1E-07 (1.1E-07)
	Chrysene	1.1E+00	1.1E-11	NA (3.9E-02)	ND (4.1E-13)
	Dibenz(a,h)anthracene	1.1E-01	1.1E-12	NA (4.1E+00)	ND (4.3E-12)
	Dieldrin	6.0E-03	5.8E-14	1.6E+01 (1.6E+01)	9.3E-13 (9.3E-13)
	Gamma-chlordane	4.1E-03	3.9E-14	1.3E+00 (1.2E+00)	5.1E-14 (4.7E-14)
	HCH (alpha)	6.2E-04	6.0E-15	6.3E+00 (6.3E+00)	3.8E-14 (3.8E-14)
	Heptachlor	1.3E-03	1.3E-14	4.6E+00 (5.7E+00)	5.9E-14 (7.3E-14)
	Heptachlor epoxide	4.1E-03	4.0E-14	9.1E+00 (1.3E+01)	3.6E-13 (5.1E-13)
	Indeno(1,2,3-cd)pyrene	3.1E-01	3.0E-12	NA (3.9E-01)	ND (1.2E-12)
	Nickel	2.5E+02	2.4E-09	NA (9.1E-01)	ND (2.2E-09)
Total Risk					1.1E-07 (1.1E-07)
Inhalation of VOCs	1,4-Dichlorobenzene	1.3E+00	1.3E-06	NA (4.0E-02)	ND (5.1E-08)
				Total Risk	ND (5.1E-08)
				Cumulative Risk	6.4E-06 (6.2E-05)

Notes:

- 95 UCL 95 percent upper confidence limit
- mg/kg Milligrams per kilogram
- mg/kg-day Milligrams per kilogram per day
- NA Not applicable
- ND Not determined
- RME Reasonable maximum exposure

TABLE 11 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
CARCINOGENIC RISKS

VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(1)	95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(2)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.
(3)	Cal/EPA risk estimates are presented in parentheses.

TABLE 12
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical	95 UCL ⁽¹⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽²⁾	Chemical-Specific Risk ⁽³⁾
Incidental Ingestion of Soil	1,4-Dichlorobenzene	1.3E+00	4.0E-09	2.4E-02 (4.0E-02)	9.7E-11 (1.6E-10)
	4,4'-DDD	8.2E-03	2.6E-11	2.4E-01 (2.4E-01)	6.2E-12 (6.2E-12)
	4,4'-DDE	4.1E-03	1.3E-11	3.4E-01 (3.4E-01)	4.4E-12 (4.4E-12)
	4,4'-DDT	7.8E-02	2.4E-10	3.4E-01 (3.4E-01)	8.3E-11 (8.3E-11)
	Aldrin	5.5E-03	1.7E-11	1.7E+01 (1.7E+01)	2.9E-10 (2.9E-10)
	Alpha-chlordane	9.9E-04	3.1E-12	1.3E+00 (1.2E+00)	4.0E-12 (3.7E-12)
	Aroclor 1016	3.1E-02	9.5E-11	NA (7.0E-02)	ND (6.6E-12)
	Aroclor-1260	1.0E-01	3.3E-10	2.0E+00 (2.0E+00)	6.5E-10 (6.5E-10)
	Benzo(a)anthracene	1.2E+00	3.7E-09	7.3E-01 (1.2E+00)	2.7E-09 (4.5E-09)
	Benzo(a)pyrene	1.2E+00	3.7E-09	7.3E+00 (1.2E+01)	2.7E-08 (4.5E-08)
	Benzo(b)fluoranthene	1.8E+00	5.6E-09	7.3E-01 (1.2E+00)	4.1E-09 (6.7E-09)
	Benzo(k)fluoranthene	4.4E-01	1.4E-09	7.3E-02 (1.2E+00)	1.0E-10 (1.6E-09)
	Bis(2-ethylhexyl)phthalate	9.5E-02	3.0E-10	1.4E-02 (8.4E-03)	4.1E-12 (2.5E-12)
	Carbazole	9.7E-02	3.0E-10	2.0E-02 (2.0E-02)	6.0E-12 (6.0E-12)
	Chromium	2.6E+02	8.2E-07	NA (NA)	ND (ND)
	Chrysene	1.1E+00	3.4E-09	7.3E-03 (1.2E-01)	2.5E-11 (4.1E-10)
	Dibenz(a,h)anthracene	1.1E-01	3.4E-10	7.3E+00 (4.1E+00)	2.5E-09 (1.4E-09)
	Dieldrin	6.0E-03	1.9E-11	1.6E+01 (1.6E+01)	3.0E-10 (3.0E-10)
	Gamma-chlordane	4.1E-03	1.3E-11	1.3E+00 (1.2E+00)	1.6E-11 (1.5E-11)
	HCH (alpha)	6.2E-04	1.9E-12	6.3E+00 (6.3E+00)	1.2E-11 (1.2E-11)
	Heptachlor	1.3E-03	4.1E-12	4.5E+00 (5.7E+00)	1.9E-11 (2.3E-11)
	Heptachlor epoxide	4.1E-03	1.3E-11	9.1E+00 (1.3E+01)	1.2E-10 (1.7E-10)
	Indeno(1,2,3-cd)pyrene	3.1E-01	9.6E-10	7.3E-01 (1.2E+00)	7.0E-10 (1.2E-09)
	Nickel	2.5E+02	7.8E-07	NA (NA)	ND (ND)
			Total Risk	3.9E-08 (6.2E-08)	
Dermal Contact with Soil	1,4-Dichlorobenzene	1.3E+00	2.7E-09	3.0E-02 (4.0E-02)	8.2E-11 (1.1E-09)
	4,4'-DDD	8.2E-03	1.7E-11	4.8E-01 (2.4E-01)	8.3E-12 (2.1E-11)
	4,4'-DDE	4.1E-03	8.7E-12	6.8E-01 (3.4E-01)	5.9E-12 (1.5E-11)
	4,4'-DDT	7.8E-02	1.6E-10	6.8E-01 (3.4E-01)	1.1E-10 (2.8E-10)
	Aldrin	5.5E-03	1.2E-11	3.4E+01 (1.7E+01)	3.9E-10 (9.8E-10)
	Alpha-chlordane	9.9E-04	2.1E-12	2.6E+00 (1.2E+00)	5.4E-12 (1.2E-11)
	Aroclor 1016	3.1E-02	3.8E-10	NA (7.0E-02)	ND (6.7E-11)
	Aroclor-1260	1.0E-01	1.3E-09	4.0E+00 (2.0E+00)	5.3E-09 (6.6E-09)
	Benzo(a)anthracene	1.2E+00	2.5E-09	1.5E+00 (1.2E+00)	3.7E-09 (4.5E-08)
	Benzo(a)pyrene	1.2E+00	2.5E-09	1.5E+01 (1.2E+01)	3.7E-08 (4.5E-07)
	Benzo(b)fluoranthene	1.8E+00	3.8E-09	1.5E+00 (1.2E+00)	5.5E-09 (6.8E-08)
	Benzo(k)fluoranthene	4.4E-01	9.2E-10	1.5E-01 (1.2E+00)	1.3E-10 (1.7E-08)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.0E-10	2.8E-02 (8.4E-03)	5.6E-12 (1.7E-11)
	Carbazole	9.7E-02	2.0E-10	4.0E-02 (2.0E-02)	8.1E-12 (4.1E-11)
	Chromium	2.6E+02	5.5E-08	NA (NA)	ND (ND)
	Chrysene	1.1E+00	2.3E-09	1.5E-02 (1.2E-01)	3.4E-11 (4.1E-09)
	Dibenz(a,h)anthracene	1.1E-01	2.3E-10	1.5E+01 (4.1E+00)	3.4E-09 (1.4E-08)
	Dieldrin	6.0E-03	1.3E-11	3.2E+01 (1.6E+01)	4.0E-10 (1.0E-09)

TABLE 12 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical	95 UCL ⁽¹⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽²⁾	Chemical-Specific Risk ⁽³⁾	
Dermal Contact with Soil	Gamma-chlordane	4.1E-03	8.5E-12	2.6E+00 (1.2E+00)	2.2E-11 (5.1E-11)	
	HCH (alpha)	6.2E-04	1.3E-12	1.3E+01 (6.3E+00)	1.6E-11 (4.1E-11)	
	Heptachlor	1.3E-03	2.8E-12	9.0E+00 (5.7E+00)	2.5E-11 (7.9E-11)	
	Heptachlor epoxide	4.1E-03	8.6E-12	1.8E+01 (1.3E+01)	1.6E-10 (5.6E-10)	
	Indeno(1,2,3-cd)pyrene	3.1E-01	6.5E-10	1.5E+00 (1.2E+00)	9.5E-10 (1.2E-08)	
	Nickel	2.5E+02	5.2E-08	NA (NA)	ND (ND)	
Total Risk					5.7E-08 (6.2E-07)	
Inhalation of Particulates	1,4-Dichlorobenzene	1.3E+00	8.2E-13	NA (4.0E-02)	ND (3.3E-14)	
	4,4'-DDD	8.2E-03	5.2E-15	NA (2.4E-01)	ND (1.2E-15)	
	4,4'-DDE	4.1E-03	2.6E-15	NA (3.4E-01)	ND (8.8E-16)	
	4,4'-DDT	7.8E-02	4.9E-14	3.4E-01 (3.4E-01)	1.7E-14 (1.7E-14)	
	Aldrin	5.5E-03	3.5E-15	1.7E+01 (1.7E+01)	5.9E-14 (5.9E-14)	
	Alpha-chlordane	9.9E-04	6.2E-16	1.3E+00 (1.2E+00)	8.1E-16 (7.5E-16)	
	Aroclor 1016	3.1E-02	1.9E-14	NA (7.0E-02)	ND (1.3E-15)	
	Aroclor-1260	1.0E-01	6.6E-14	NA (2.0E+00)	ND (1.3E-13)	
	Benzo(a)anthracene	1.2E+00	7.5E-13	NA (3.9E-01)	ND (2.9E-13)	
	Benzo(a)pyrene	1.2E+00	7.5E-13	NA (3.9E+00)	ND (2.9E-12)	
	Benzo(b)fluoranthene	1.8E+00	1.1E-12	NA (3.9E-01)	ND (4.4E-13)	
	Benzo(k)fluoranthene	4.4E-01	2.8E-13	NA (3.9E-01)	ND (1.1E-13)	
	Bis(2-ethylhexyl)phthalate	9.5E-02	6.0E-14	NA (8.4E-03)	ND (5.0E-16)	
	Carbazole	9.7E-02	6.1E-14	NA (2.0E-02)	ND (1.2E-15)	
	Chromium	2.6E+02	1.7E-10	4.2E+01 (4.2E+01)	7.0E-09 (7.0E-09)	
	Chrysene	1.1E+00	6.9E-13	NA (3.9E-02)	ND (2.7E-14)	
	Dibenz(a,h)anthracene	1.1E-01	6.9E-14	NA (4.1E+00)	ND (2.8E-13)	
	Dieldrin	6.0E-03	3.8E-15	1.6E+01 (1.6E+01)	6.1E-14 (6.1E-14)	
	Gamma-chlordane	4.1E-03	2.5E-15	1.3E+00 (1.2E+00)	3.3E-15 (3.1E-15)	
	HCH (alpha)	6.2E-04	3.9E-16	6.3E+00 (6.3E+00)	2.4E-15 (2.4E-15)	
	Heptachlor	1.3E-03	8.3E-16	4.6E+00 (5.7E+00)	3.8E-15 (4.7E-15)	
	Heptachlor epoxide	4.1E-03	2.6E-15	9.1E+00 (1.3E+01)	2.3E-14 (3.3E-14)	
	Indeno(1,2,3-cd)pyrene	3.1E-01	1.9E-13	NA (3.9E-01)	ND (7.6E-14)	
	Nickel	2.5E+02	1.6E-10	NA (9.1E-01)	ND (1.4E-10)	
Total Risk					7.0E-09 (7.1E-09)	
Inhalation of VOCs	1,4-Dichlorobenzene	1.3E+00	8.3E-08	NA (4.0E-02)	ND (3.3E-09)	
	Total Risk					ND (3.3E-09)
Cumulative Risk						1.0E-07 (7.0E-07)

Notes:

- 95 UCL 95 percent upper confidence limit
- mg/kg Milligrams per kilogram
- mg/kg-day Milligrams per kilogram per day
- NA Not applicable
- ND Not determined
- CTE Central tendency exposure

TABLE 12 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
CARCINOGENIC RISKS

- | | |
|------|----------------------------|
| VOCs | Volatile organic chemicals |
| COCs | Chemical of concern |
- (1) Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
- (2) 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.
- (4) Cal/EPA risk estimates are presented in parentheses.

TABLE 13
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Incidental Ingestion of Soil	1,2,4-Trichlorobenzene	1.1E+00	1.6E-07	1.0E-02 (1.0E-02)	1.6E-05 (1.6E-05)
	1,4-Dichlorobenzene	1.3E+00	1.9E-07	NA (2.3E-01)	ND (8.4E-07)
	2-Chlorophenol	1.1E+00	1.6E-07	5.0E-03 (5.0E-03)	3.3E-05 (3.3E-05)
	4,4'-DDT	7.8E-02	1.2E-08	5.0E-04 (5.0E-04)	2.3E-05 (2.3E-05)
	Acenaphthene	1.3E+00	2.0E-07	6.0E-02 (6.0E-02)	3.3E-06 (3.3E-06)
	Acenaphthylene	3.3E-01	4.9E-08	NA (NA)	ND (ND)
	Aldrin	5.5E-03	8.1E-10	3.0E-05 (3.0E-05)	2.7E-05 (2.7E-05)
	Alpha-chlordane	9.9E-04	1.5E-10	6.0E-05 (6.0E-05)	2.4E-06 (2.4E-06)
	Anthracene	3.5E-01	5.2E-08	3.0E-01 (3.0E-01)	1.7E-07 (1.7E-07)
	Antimony	6.2E+00	9.2E-07	4.0E-04 (4.0E-04)	2.3E-03 (2.3E-03)
	Aroclor 1016	3.1E-02	4.5E-09	7.0E-05 (7.0E-05)	6.5E-05 (6.5E-05)
	Barium	2.6E+02	3.9E-05	7.0E-02 (7.0E-02)	5.6E-04 (5.6E-04)
	Benzo(g,h,i)perylene	3.0E-01	4.4E-08	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.4E-08	2.0E-02 (2.0E-02)	7.0E-07 (7.0E-07)
	Cobalt	1.6E+01	2.4E-06	6.0E-02 (6.0E-02)	4.0E-05 (4.0E-05)
	Copper	2.0E+02	2.9E-05	3.7E-02 (3.7E-02)	7.9E-04 (7.9E-04)
	Dieldrin	6.0E-03	8.9E-10	5.0E-05 (5.0E-05)	1.8E-05 (1.8E-05)
	Diethyl phthalate	1.1E+00	1.6E-07	8.0E-01 (8.0E-01)	2.0E-07 (2.0E-07)
	Endosulfan I	1.3E-03	1.9E-10	6.0E-03 (6.0E-03)	3.2E-08 (3.2E-08)
	Endosulfan II	2.0E-03	3.0E-10	6.0E-03 (6.0E-03)	5.0E-08 (5.0E-08)
	Endrin	6.8E-03	1.0E-09	3.0E-04 (3.0E-04)	3.4E-06 (3.4E-06)
	Endrin Aldehyde	7.1E-03	1.1E-09	3.0E-04 (3.0E-04)	3.5E-06 (3.5E-06)
	Endrin ketone	7.1E-03	1.0E-09	3.0E-04 (3.0E-04)	3.5E-06 (3.5E-06)
	Fluoranthene	1.3E+00	1.9E-07	4.0E-02 (4.0E-02)	4.8E-06 (4.8E-06)
	Fluorene	1.2E-01	1.8E-08	4.0E-02 (4.0E-02)	4.4E-07 (4.4E-07)
	Gamma-chlordane	4.1E-03	6.0E-10	6.0E-05 (6.0E-05)	1.0E-05 (1.0E-05)
	Heptachlor	1.3E-03	2.0E-10	5.0E-04 (5.0E-04)	3.9E-07 (3.9E-07)
	Heptachlor epoxide	4.1E-03	6.1E-10	1.3E-05 (1.3E-05)	4.7E-05 (4.7E-05)
	Manganese	8.6E+02	1.3E-04	4.7E-02 (4.7E-02)	2.7E-03 (2.7E-03)
	Methoxychlor	2.4E-02	3.5E-09	5.0E-03 (5.0E-03)	7.0E-07 (7.0E-07)
	Molybdenum	1.4E+00	2.1E-07	5.0E-03 (5.0E-03)	4.1E-05 (4.1E-05)
	Nickel	2.5E+02	3.7E-05	2.0E-02 (2.0E-02)	1.9E-03 (1.9E-03)
	Phenanthrene	1.1E+00	1.6E-07	NA (NA)	ND (ND)
	Pyrene	1.8E+00	2.7E-07	3.0E-02 (3.0E-02)	8.9E-06 (8.9E-06)
	Selenium	8.0E-01	1.2E-07	5.0E-03 (5.0E-03)	2.4E-05 (2.4E-05)
	Thallium	8.6E-01	1.3E-07	8.0E-05 (8.0E-05)	1.6E-03 (1.6E-03)
	Vanadium	1.6E+02	2.4E-05	7.0E-03 (7.0E-03)	3.5E-03 (3.5E-03)
	Zinc	3.9E+02	5.8E-05	3.0E-01 (3.0E-01)	1.9E-04 (1.9E-04)
				Total HI	1.4E-02 (1.4E-02)
Dermal Contact with Soil	1,2,4-Trichlorobenzene	1.1E+00	5.2E-07	5.0E-03 (1.0E-02)	1.0E-04 (5.2E-04)
	1,4-Dichlorobenzene	1.3E+00	6.2E-07	NA (2.3E-01)	ND (2.7E-05)
	2-Chlorophenol	1.1E+00	5.2E-07	2.5E-03 (5.0E-03)	2.1E-04 (1.0E-03)
	4,4'-DDT	7.8E-02	3.7E-08	2.5E-04 (5.0E-04)	1.5E-04 (3.7E-04)

TABLE 13 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Dermal Contact with Soil	Acenaphthene	1.3E+00	6.4E-07	3.0E-02 (6.0E-02)	2.1E-05 (1.6E-04)
	Acenaphthylene	3.3E-01	-1.6E-07	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.6E-09	1.5E-05 (3.0E-05)	1.7E-04 (4.3E-04)
	Alpha-chlordanne	9.9E-04	4.7E-10	3.0E-05 (6.0E-05)	1.6E-05 (3.9E-05)
	Anthracene	3.5E-01	1.7E-07	1.5E-01 (3.0E-01)	1.1E-06 (8.3E-06)
	Antimony	6.2E+00	8.8E-06	8.0E-05 (4.0E-04)	3.7E-03 (7.4E-03)
	Aroclor 1016	3.1E-02	8.7E-08	3.5E-05 (7.0E-05)	2.5E-03 (3.1E-03)
	Barium	2.6E+02	1.3E-05	1.4E-02 (7.0E-02)	9.0E-04 (1.8E-03)
	Benzo(g,h,i)perylene	3.0E-01	1.4E-07	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.5E-08	1.0E-02 (2.0E-02)	4.5E-06 (2.2E-05)
	Cobalt	1.6E+01	7.6E-07	1.2E-02 (6.0E-02)	6.3E-05 (1.3E-04)
	Copper	2.0E+02	9.4E-06	7.4E-03 (3.7E-02)	1.3E-03 (2.5E-03)
	Dieldrin	6.0E-03	2.9E-09	2.5E-05 (5.0E-05)	1.1E-04 (2.9E-04)
	Diethyl phthalate	1.1E+00	5.2E-07	4.0E-01 (8.0E-01)	1.3E-06 (6.5E-06)
	Endosulfan I	1.3E-03	6.2E-10	3.0E-03 (6.0E-03)	2.1E-07 (5.1E-07)
	Endosulfan II	2.0E-03	9.7E-10	3.0E-03 (6.0E-03)	3.2E-07 (8.1E-07)
	Endrin	6.8E-03	3.2E-09	1.5E-04 (3.0E-04)	2.1E-05 (5.4E-05)
	Endrin Aldehyde	7.1E-03	3.4E-09	1.5E-04 (3.0E-04)	2.2E-05 (5.6E-05)
	Endrin ketone	7.1E-03	3.3E-09	1.5E-04 (3.0E-04)	2.2E-05 (5.6E-05)
	Fluoranthene	1.3E+00	6.1E-07	2.0E-02 (4.0E-02)	3.1E-05 (2.3E-04)
	Fluorene	1.2E-01	5.7E-08	2.0E-02 (4.0E-02)	2.8E-06 (2.1E-05)
	Gamma-chlordanne	4.1E-03	1.9E-09	3.0E-05 (6.0E-05)	6.4E-05 (1.6E-04)
	Heptachlor	1.3E-03	6.3E-10	2.5E-04 (5.0E-04)	2.5E-06 (6.3E-06)
	Heptachlor epoxide	4.1E-03	1.9E-09	6.5E-06 (1.3E-05)	3.0E-04 (7.5E-04)
	Manganese	8.6E+02	4.1E-05	9.4E-03 (4.7E-02)	4.3E-03 (8.6E-03)
	Methoxychlor	2.4E-02	1.1E-08	2.5E-03 (5.0E-03)	4.5E-06 (1.1E-05)
	Molybdenum	1.4E+00	6.6E-08	1.0E-03 (5.0E-03)	6.6E-05 (1.3E-05)
	Nickel	2.5E+02	1.2E-05	4.0E-03 (2.0E-02)	3.0E-03 (5.9E-03)
	Phenanthrene	1.1E+00	5.2E-07	NA (NA)	ND (ND)
	Pyrene	1.8E+00	8.5E-06	1.5E-02 (3.0E-02)	5.7E-05 (4.3E-04)
	Selenium	8.0E-01	3.8E-08	1.0E-03 (5.0E-03)	3.8E-05 (7.6E-05)
	Thallium	8.6E-01	4.1E-08	1.6E-05 (8.0E-05)	2.5E-03 (5.1E-03)
	Vanadium	1.6E+02	7.7E-06	1.4E-03 (7.0E-03)	5.5E-03 (1.1E-02)
	Zinc	3.9E+02	1.9E-05	6.0E-02 (3.0E-01)	3.1E-04 (6.2E-04)
	Total HI				2.5E-02 (5.1E-02)
Inhalation of Particulates	1,2,4-Trichlorobenzene	1.1E+00	2.5E-11	5.7E-02 (5.7E-02)	4.3E-10 (4.3E-10)
	1,4-Dichlorobenzene	1.3E+00	2.9E-11	2.3E-01 (2.3E-01)	1.3E-10 (1.3E-10)
	2-Chlorophenol	1.1E+00	2.5E-11	NA (5.0E-03)	ND (4.9E-09)
	4,4'-DDT	7.8E-02	1.8E-12	NA (5.0E-04)	ND (3.5E-09)
	Acenaphthene	1.3E+00	3.0E-11	NA (6.0E-02)	ND (5.0E-10)
	Acenaphthylene	3.3E-01	7.4E-12	NA (NA)	ND (ND)
	Aldrin	5.5E-03	1.2E-13	NA (3.0E-05)	ND (4.1E-09)
	Alpha-chlordanne	9.9E-04	2.2E-14	NA (6.0E-05)	ND (3.7E-10)

TABLE 13 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽⁰⁾	95 UCL ⁽⁰⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Inhalation of Particulates	Anthracene	3.5E-01	7.9E-12	NA (3.0E-01)	ND (2.6E-11)
	Antimony	6.2E+00	1.4E-10	NA (NA)	ND (ND)
	Aroclor 1016	3.1E-02	6.9E-13	NA (7.0E-05)	ND (9.8E-09)
	Barium	2.6E+02	6.0E-09	1.4E-04 (1.4E-04)	4.3E-05 (4.3E-05)
	Benzo(g,h,i)perylene	3.0E-01	6.7E-12	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.1E-12	NA (2.0E-02)	ND (1.1E-10)
	Cobalt	1.6E+01	3.6E-10	2.9E-04 (2.9E-04)	1.2E-06 (1.2E-06)
	Copper	2.0E+02	4.5E-09	NA (NA)	ND (ND)
	Dieldrin	6.0E-03	1.4E-13	NA (5.0E-05)	ND (2.7E-09)
	Diethyl phthalate	1.1E+00	2.5E-11	NA (8.0E-01)	ND (3.1E-11)
	Endosulfan I	1.3E-03	2.9E-14	NA (6.0E-03)	ND (4.9E-12)
	Endosulfan II	2.0E-03	4.6E-14	NA (6.0E-03)	ND (7.7E-12)
	Endrin	6.8E-03	1.5E-13	NA (3.0E-04)	ND (5.1E-10)
	Endrin Aldehyde	7.1E-03	1.6E-13	NA (3.0E-04)	ND (5.3E-10)
	Endrin ketone	7.1E-03	1.6E-13	NA (3.0E-04)	ND (5.3E-10)
	Fluoranthene	1.3E+00	2.9E-11	NA (4.0E-02)	ND (7.2E-10)
	Fluorene	1.2E-01	2.7E-12	NA (4.0E-02)	ND (6.7E-11)
	Gamma-chlordane	4.1E-03	9.1E-14	NA (6.0E-05)	ND (1.5E-09)
	Heptachlor	1.3E-03	3.0E-14	NA (5.0E-04)	ND (6.0E-11)
	Heptachlor epoxide	4.1E-03	9.2E-14	NA (1.3E-05)	ND (7.1E-09)
	Manganese	8.6E+02	1.9E-08	1.0E-05 (1.0E-05)	1.9E-03 (1.9E-03)
	Methoxychlor	2.4E-02	5.3E-13	NA (5.0E-03)	ND (1.1E-10)
	Molybdenum	1.4E+00	3.1E-11	NA (NA)	ND (ND)
	Nickel	2.5E+02	5.6E-09	NA (NA)	ND (ND)
	Phenanthrene	1.1E+00	2.5E-11	NA (NA)	ND (ND)
	Pyrene	1.8E+00	4.0E-11	NA (3.0E-02)	ND (1.3E-09)
	Selenium	8.0E-01	1.8E-11	NA (NA)	ND (ND)
	Thallium	8.6E-01	1.9E-11	NA (NA)	ND (ND)
	Vanadium	1.6E+02	3.7E-09	NA (NA)	ND (ND)
	Zinc	3.9E+02	8.8E-09	NA (NA)	ND (ND)
	Total HI				2.0E-03 (2.0E-03)
Inhalation of VOCs	1,2,4-Trichlorobenzene	1.1E+00	7.8E-07	5.7E-02 (5.7E-02)	1.4E-05 (1.4E-05)
	1,4-Dichlorobenzene	1.3E+00	3.0E-06	2.3E-01 (2.3E-01)	1.3E-05 (1.3E-05)
	2-Chlorophenol	1.1E+00	3.4E-06	NA (5.0E-03)	ND (6.7E-04)
Total HI				2.7E-05 (7.0E-04)	
Cumulative HI				4.1E-02 (6.8E-02)	

Notes:

95 UCL 95 percent upper confidence limit
 mg/kg Milligrams per kilogram
 mg/kg-day Milligrams per kilogram per day
 HI Hazard index

TABLE 13 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

NA	Not applicable
ND	Not determined
RME	Reasonable maximum exposure
VOCs	Volatile organic chemicals
COC	Chemical of concern

- (1) Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
- (2) The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
- (4) Cal/EPA HI estimates are presented in parentheses.

TABLE 14
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽³⁾	95 UCL ⁽³⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Incidental Ingestion of Soil	1,2,4-Trichlorobenzene	1.1E+00	2.7E-08	1.0E-02 (1.0E-02)	2.7E-06 (2.7E-06)
	1,4-Dichlorobenzene	1.3E+00	3.1E-08	NA (2.3E-01)	ND (1.4E-07)
	2-Chlorophenol	1.1E+00	- 2.7E-08	5.0E-03 (5.0E-03)	5.3E-06 (5.3E-06)
	4,4'-DDT	7.8E-02	1.9E-09	5.0E-04 (5.0E-04)	3.8E-06 (3.8E-06)
	Acenaphthene	1.3E+00	3.2E-08	6.0E-02 (6.0E-02)	5.4E-07 (5.4E-07)
	Acenaphthylene	3.3E-01	8.0E-09	NA (NA)	ND (ND)
	Aldrin	5.5E-03	1.3E-10	3.0E-05 (3.0E-05)	4.4E-06 (4.4E-06)
	Alpha-chlordane	9.9E-04	2.4E-11	6.0E-05 (6.0E-05)	4.0E-07 (4.0E-07)
	Anthracene	3.5E-01	8.5E-09	3.0E-01 (3.0E-01)	2.8E-08 (2.8E-08)
	Antimony	6.2E+00	1.5E-07	4.0E-04 (4.0E-04)	3.8E-04 (3.8E-04)
	Aroclor 1016	3.1E-02	7.4E-10	7.0E-05 (7.0E-05)	1.1E-05 (1.1E-05)
	Barium	2.6E+02	6.4E-06	7.0E-02 (7.0E-02)	9.1E-05 (9.1E-05)
	Benzo(g,h,i)perylene	3.0E-01	7.3E-09	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.3E-09	2.0E-02 (2.0E-02)	1.1E-07 (1.1E-07)
	Cobalt	1.6E+01	3.9E-07	6.0E-02 (6.0E-02)	6.5E-06 (6.5E-06)
	Copper	2.0E+02	4.8E-06	3.7E-02 (3.7E-02)	1.3E-04 (1.3E-04)
	Dieldrin	6.0E-03	1.5E-10	5.0E-05 (5.0E-05)	2.9E-06 (2.9E-06)
	Diethyl phthalate	1.1E+00	2.7E-08	8.0E-01 (8.0E-01)	3.3E-08 (3.3E-08)
	Endosulfan I	1.3E-03	3.1E-11	6.0E-03 (6.0E-03)	5.2E-09 (5.2E-09)
	Endosulfan II	2.0E-03	4.9E-11	6.0E-03 (6.0E-03)	8.2E-09 (8.2E-09)
	Endrin	6.8E-03	1.6E-10	3.0E-04 (3.0E-04)	5.5E-07 (5.5E-07)
	Endrin Aldehyde	7.1E-03	1.7E-10	3.0E-04 (3.0E-04)	5.7E-07 (5.7E-07)
	Endrin ketone	7.1E-03	1.7E-10	3.0E-04 (3.0E-04)	5.7E-07 (5.7E-07)
	Fluoranthene	1.3E+00	3.1E-08	4.0E-02 (4.0E-02)	7.8E-07 (7.8E-07)
	Fluorene	1.2E-01	2.9E-09	4.0E-02 (4.0E-02)	7.3E-08 (7.3E-08)
	Gamma-chlordane	4.1E-03	9.8E-11	6.0E-05 (6.0E-05)	1.6E-06 (1.6E-06)
	Heptachlor	1.3E-03	3.2E-11	5.0E-04 (5.0E-04)	6.4E-08 (6.4E-08)
	Heptachlor epoxide	4.1E-03	9.9E-11	1.3E-05 (1.3E-05)	7.6E-06 (7.6E-06)
	Manganese	8.6E+02	2.1E-05	4.7E-02 (4.7E-02)	4.4E-04 (4.4E-04)
	Methoxychlor	2.4E-02	5.7E-10	5.0E-03 (5.0E-03)	1.1E-07 (1.1E-07)
	Molybdenum	1.4E+00	3.4E-08	5.0E-03 (5.0E-03)	6.7E-06 (6.7E-06)
	Nickel	2.5E+02	6.1E-06	2.0E-02 (2.0E-02)	3.0E-04 (3.0E-04)
	Phenanthrene	1.1E+00	2.7E-08	NA (NA)	ND (ND)
	Pyrene	1.8E+00	4.4E-08	3.0E-02 (3.0E-02)	1.5E-06 (1.5E-06)
	Selenium	8.0E-01	1.9E-08	5.0E-03 (5.0E-03)	3.9E-06 (3.9E-06)
	Thallium	8.6E-01	2.1E-08	8.0E-05 (8.0E-05)	2.6E-04 (2.6E-04)
	Vanadium	1.6E+02	4.0E-06	7.0E-03 (7.0E-03)	5.6E-04 (5.6E-04)
	Zinc	3.9E+02	9.5E-06	3.0E-01 (3.0E-01)	3.2E-05 (3.2E-05)
				Total HI	2.3E-03 (2.3E-03)
Dermal Contact with Soil	1,2,4-Trichlorobenzene	1.1E+00	1.8E-08	5.0E-03 (1.0E-02)	3.6E-06 (1.8E-05)
	1,4-Dichlorobenzene	1.3E+00	2.1E-08	NA (2.3E-01)	ND (9.2E-07)
	2-Chlorophenol	1.1E+00	1.8E-08	2.5E-03 (5.0E-03)	7.2E-06 (3.6E-05)
	4,4'-DDT	7.8E-02	1.3E-09	2.5E-04 (5.0E-04)	5.1E-06 (1.3E-05)
	Acenaphthene	1.3E+00	2.2E-08	3.0E-02 (6.0E-02)	7.3E-07 (5.5E-06)

TABLE 14 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽¹⁾	95% UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Dermal Contact with Soil	Acenaphthylene	3.3E-01	5.4E-09	NA (NA)	ND (ND)
	Aldrin	5.5E-03	9.0E-11	1.5E-05 (3.0E-05)	6.0E-06 (1.5E-05)
	Alpha-chlordane	9.9E-04	1.6E-11	3.0E-05 (6.0E-05)	5.4E-07 (1.3E-06)
	Anthracene	3.5E-01	5.7E-09	1.5E-01 (3.0E-01)	3.8E-08 (2.8E-07)
	Antimony	6.2E+00	3.0E-07	8.0E-05 (4.0E-04)	1.3E-04 (7.5E-04)
	Aroclor 1016	3.1E-02	3.0E-09	3.5E-05 (7.0E-05)	8.5E-05 (1.1E-04)
	Barium	2.6E+02	4.3E-07	1.4E-02 (7.0E-02)	3.1E-05 (6.2E-05)
	Benzo(g,h,i)perylene	3.0E-01	4.9E-09	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.5E-09	1.0E-02 (2.0E-02)	1.5E-07 (7.7E-07)
	Cobalt	1.6E+01	2.6E-08	1.2E-02 (6.0E-02)	2.2E-06 (4.4E-06)
	Copper	2.0E+02	3.2E-07	7.4E-03 (3.7E-02)	4.4E-05 (8.7E-05)
	Dieldrin	6.0E-03	9.8E-11	2.5E-05 (5.0E-05)	3.9E-06 (9.8E-06)
	Diethyl phthalate	1.1E+00	1.8E-08	4.0E-01 (8.0E-01)	4.5E-08 (2.2E-07)
	Endosulfan I	1.3E-03	2.1E-11	3.0E-03 (6.0E-03)	7.1E-09 (1.8E-08)
	Endosulfan II	2.0E-03	3.3E-11	3.0E-03 (6.0E-03)	1.1E-08 (2.8E-08)
	Endrin	6.8E-03	1.1E-10	1.5E-04 (3.0E-04)	7.4E-07 (1.8E-06)
	Endrin Aldehyde	7.1E-03	1.2E-10	1.5E-04 (3.0E-04)	7.7E-07 (1.9E-06)
	Endrin ketone	7.1E-03	1.1E-10	1.5E-04 (3.0E-04)	7.7E-07 (1.9E-06)
	Fluoranthene	1.3E+00	2.1E-08	2.0E-02 (4.0E-02)	1.0E-06 (7.9E-06)
	Fluorene	1.2E-01	2.0E-09	2.0E-02 (4.0E-02)	9.8E-08 (7.3E-07)
	Gamma-chlordane	4.1E-03	6.6E-11	3.0E-05 (6.0E-05)	2.2E-06 (5.5E-06)
	Heptachlor	1.3E-03	2.2E-11	2.5E-04 (5.0E-04)	8.6E-08 (2.2E-07)
	Heptachlor epoxide	4.1E-03	6.7E-11	6.5E-06 (1.3E-05)	1.0E-05 (2.6E-05)
	Manganese	8.6E+02	1.4E-06	9.4E-03 (4.7E-02)	1.5E-04 (3.0E-04)
	Methoxychlor	2.4E-02	3.8E-10	2.5E-03 (5.0E-03)	1.5E-07 (3.8E-07)
	Molybdenum	1.4E+00	2.3E-09	1.0E-03 (5.0E-03)	2.3E-06 (4.5E-06)
	Nickel	2.5E+02	4.1E-07	4.0E-03 (2.0E-02)	1.0E-04 (2.0E-04)
	Phenanthrene	1.1E+00	1.8E-08	NA (NA)	ND (ND)
	Pyrene	1.8E+00	2.9E-08	1.5E-02 (3.0E-02)	2.0E-06 (1.5E-05)
	Selenium	8.0E-01	1.3E-09	1.0E-03 (5.0E-03)	1.3E-06 (2.6E-06)
	Thallium	8.6E-01	1.4E-09	1.6E-05 (8.0E-05)	8.7E-05 (1.7E-04)
	Vanadium	1.6E+02	2.7E-07	1.4E-03 (7.0E-03)	1.9E-04 (3.8E-04)
	Zinc	3.9E+02	6.4E-07	6.0E-02 (3.0E-01)	1.1E-05 (2.1E-05)
				Total HI	8.8E-04 (1.8E-03)
Inhalation of Particulates	1,2,4-Trichlorobenzene	1.1E+00	5.4E-12	5.7E-02 (5.7E-02)	9.4E-11 (9.4E-11)
	1,4-Dichlorobenzene	1.3E+00	6.3E-12	2.3E-01 (2.3E-01)	2.8E-11 (2.8E-11)
	2-Chlorophenol	1.1E+00	5.4E-12	NA (5.0E-03)	ND (1.1E-09)
	4,4'-DDT	7.8E-02	3.8E-13	NA (5.0E-04)	ND (7.6E-10)
	Acenaphthene	1.3E+00	6.5E-12	NA (6.0E-02)	ND (1.1E-10)
	Acenaphthylene	3.3E-01	1.6E-12	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.7E-14	NA (3.0E-05)	ND (8.9E-10)
	Alpha-chlordane	9.9E-04	4.8E-15	NA (6.0E-05)	ND (8.1E-11)
	Anthracene	3.5E-01	1.7E-12	NA (3.0E-01)	ND (5.7E-12)
	Antimony	6.2E+00	3.0E-11	NA (NA)	ND (ND)

TABLE 14 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(c)	Chemical-Specific Hazard Index ^(d)
Inhalation of Particulates	Aroclor 1016	3.1E-02	1.5E-13	NA (7.0E-05)	ND (2.1E-09)
	Barium	2.6E+02	1.3E-09	1.4E-04 (1.4E-04)	9.2E-06 (9.2E-06)
	Benzo(g,h,i)perylene	3.0E-01	1.5E-12	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.6E-13	NA (2.0E-02)	ND (2.3E-11)
	Cobalt	1.6E+01	7.8E-11	2.9E-04 (2.9E-04)	2.7E-07 (2.7E-07)
	Copper	2.0E+02	9.7E-10	NA (NA)	ND (ND)
	Dieldrin	6.0E-03	2.9E-14	NA (5.0E-05)	ND (5.9E-10)
	Diethyl phthalate	1.1E+00	5.4E-12	NA (8.0E-01)	ND (6.7E-12)
	Endosulfan I	1.3E-03	6.4E-15	NA (6.0E-03)	ND (1.1E-12)
	Endosulfan II	2.0E-03	1.0E-14	NA (6.0E-03)	ND (1.7E-12)
	Endrin	6.8E-03	3.3E-14	NA (3.0E-04)	ND (1.1E-10)
	Endrin Aldehyde	7.1E-03	3.5E-14	NA (3.0E-04)	ND (1.2E-10)
	Endrin ketone	7.1E-03	3.4E-14	NA (3.0E-04)	ND (1.1E-10)
	Fluoranthene	1.3E+00	6.3E-12	NA (4.0E-02)	ND (1.6E-10)
	Fluorene	1.2E-01	5.9E-13	NA (4.0E-02)	ND (1.5E-11)
	Gamma-chlordane	4.1E-03	2.0E-14	NA (6.0E-05)	ND (3.3E-10)
	Heptachlor	1.3E-03	6.5E-15	NA (5.0E-04)	ND (1.3E-11)
	Heptachlor epoxide	4.1E-03	2.0E-14	NA (1.3E-05)	ND (1.5E-09)
	Manganese	8.6E+02	4.2E-09	1.0E-05 (1.0E-05)	4.2E-04 (4.2E-04)
	Methoxychlor	2.4E-02	1.1E-13	NA (5.0E-03)	ND (2.3E-11)
	Molybdenum	1.4E+00	6.8E-12	NA (NA)	ND (ND)
	Nickel	2.5E+02	1.2E-09	NA (NA)	ND (ND)
	Phenanthrene	1.1E+00	5.4E-12	NA (NA)	ND (ND)
	Pyrene	1.8E+00	8.8E-12	NA (3.0E-02)	ND (2.9E-10)
	Selenium	8.0E-01	3.9E-12	NA (NA)	ND (ND)
	Thallium	8.6E-01	4.2E-12	NA (NA)	ND (ND)
	Vanadium	1.6E+02	8.0E-10	NA (NA)	ND (ND)
	Zinc	3.9E+02	1.9E-09	NA (NA)	ND (ND)
	Total HI				4.3E-04 (4.3E-04)
Inhalation of VOCs	1,2,4-Trichlorobenzene	1.1E+00	1.7E-07	5.7E-02 (5.7E-02)	3.0E-06 (3.0E-06)
	1,4-Dichlorobenzene	1.3E+00	6.4E-07	2.3E-01 (2.3E-01)	2.8E-06 (2.8E-06)
	2-Chlorophenol	1.1E+00	7.3E-07	NA (5.0E-03)	ND (1.5E-04)
	Total HI				5.8E-06 (1.5E-04)
Cumulative HI					3.6E-03 (4.6E-03)

Notes:

- 95 UCL 95 percent upper confidence limit
- mg/kg Milligrams per kilogram
- mg/kg-day Milligrams per kilogram per day
- HI Hazard index
- NA Not applicable
- ND Not determined
- CTE Central tendency exposure

TABLE 14 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
RECREATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
(4)	Cal/EPA HI estimates are presented in parentheses.

TABLE 15
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Incidental Ingestion of Soil	1,4-Dichlorobenzene	1.3E+00	2.3E-07	2.4E-02 (4.0E-02)	5.5E-09 (9.1E-09)
	4,4'-DDD	8.2E-03	1.4E-09	2.4E-01 (2.4E-01)	3.5E-10 (3.5E-10)
	4,4'-DDE	4.1E-03	7.2E-10	3.4E-01 (3.4E-01)	2.5E-10 (2.5E-10)
	4,4'-DDT	7.8E-02	1.4E-08	3.4E-01 (3.4E-01)	4.6E-09 (4.6E-09)
	Aldrin	5.5E-03	9.6E-10	1.7E+01 (1.7E+01)	1.6E-08 (1.6E-08)
	Alpha-chlordane	9.9E-04	1.7E-10	1.3E+00 (1.2E+00)	2.3E-10 (2.1E-10)
	Aroclor 1016	3.1E-02	5.3E-09	NA (7.0E-02)	ND (3.7E-10)
	Aroclor-1260	1.0E-01	1.8E-08	2.0E+00 (2.0E+00)	3.7E-08 (3.7E-08)
	Benzo(a)anthracene	1.2E+00	2.1E-07	7.3E-01 (1.2E+00)	1.5E-07 (2.5E-07)
	Benzo(a)pyrene	1.2E+00	2.1E-07	7.3E+00 (1.2E+01)	1.5E-06 (2.5E-06)
	Benzo(b)fluoranthene	1.8E+00	3.1E-07	7.3E-01 (1.2E+00)	2.3E-07 (3.8E-07)
	Benzo(k)fluoranthene	4.4E-01	7.7E-08	7.3E-02 (1.2E+00)	5.6E-09 (9.2E-08)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.7E-08	1.4E-02 (8.4E-03)	2.3E-10 (1.4E-10)
	Carbazole	9.7E-02	1.7E-08	2.0E-02 (2.0E-02)	3.4E-10 (3.4E-10)
	Chromium	2.6E+02	4.6E-05	NA (NA)	ND (ND)
	Chrysene	1.1E+00	1.9E-07	7.3E-03 (1.2E-01)	1.4E-09 (2.3E-08)
	Dibenz(a,h)anthracene	1.1E-01	1.9E-08	7.3E+00 (4.1E+00)	1.4E-07 (7.9E-08)
	Dieldrin	6.0E-03	1.1E-09	1.6E+01 (1.6E+01)	1.7E-08 (1.7E-08)
	Gamma-chlordane	4.1E-03	7.1E-10	1.3E+00 (1.2E+00)	9.2E-10 (8.5E-10)
	HCH (alpha)	6.2E-04	1.1E-10	6.3E+00 (6.3E+00)	6.8E-10 (6.8E-10)
	Heptachlor	1.3E-03	2.3E-10	4.5E+00 (5.7E+00)	1.0E-09 (1.3E-09)
	Heptachlor epoxide	4.1E-03	7.2E-10	9.1E+00 (1.3E+01)	6.5E-09 (9.3E-09)
	Indeno(1,2,3-cd)pyrene	3.1E-01	5.4E-08	7.3E-01 (1.2E+00)	4.0E-08 (6.5E-08)
	Nickel	2.5E+02	4.4E-05	NA (NA)	ND (ND)
	Total Risk				2.2E-06 (3.5E-06)
Dermal Contact with Soil	1,4-Dichlorobenzene	1.3E+00	1.3E-07	3.0E-02 (4.0E-02)	4.0E-09 (5.3E-08)
	4,4'-DDD	8.2E-03	8.4E-10	4.8E-01 (2.4E-01)	4.0E-10 (1.0E-09)
	4,4'-DDE	4.1E-03	4.2E-10	6.8E-01 (3.4E-01)	2.9E-10 (7.1E-10)
	4,4'-DDT	7.8E-02	7.9E-09	6.8E-01 (3.4E-01)	5.4E-09 (1.4E-08)
	Aldrin	5.5E-03	5.6E-10	3.4E+01 (1.7E+01)	1.9E-08 (4.8E-08)
	Alpha-chlordane	9.9E-04	1.0E-10	2.6E+00 (1.2E+00)	2.6E-10 (6.0E-10)
	Aroclor 1016	3.1E-02	1.9E-08	NA (7.0E-02)	ND (3.3E-09)
	Aroclor-1260	1.0E-01	6.4E-08	4.0E+00 (2.0E+00)	2.6E-07 (3.2E-07)
	Benzo(a)anthracene	1.2E+00	1.2E-07	1.5E+00 (1.2E+00)	1.8E-07 (2.2E-06)
	Benzo(a)pyrene	1.2E+00	1.2E-07	1.5E+01 (1.2E+01)	1.8E-06 (2.2E-05)
	Benzo(b)fluoranthene	1.8E+00	1.8E-07	1.5E+00 (1.2E+00)	2.7E-07 (3.3E-06)
	Benzo(k)fluoranthene	4.4E-01	4.5E-08	1.5E-01 (1.2E+00)	6.5E-09 (8.1E-07)
	Bis(2-ethylhexyl)phthalate	9.5E-02	9.7E-09	2.8E-02 (8.4E-03)	2.7E-10 (8.1E-10)
	Carbazole	9.7E-02	9.9E-09	4.0E-02 (2.0E-02)	3.9E-10 (2.0E-09)
	Chromium	2.6E+02	2.7E-06	NA (NA)	ND (ND)
	Chrysene	1.1E+00	1.1E-07	1.5E-02 (1.2E-01)	1.6E-09 (2.0E-07)
	Dibenz(a,h)anthracene	1.1E-01	1.1E-08	1.5E+01 (4.1E+00)	1.6E-07 (6.9E-07)
	Dieldrin	6.0E-03	6.1E-10	3.2E+01 (1.6E+01)	2.0E-08 (4.9E-08)

TABLE 15 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Dermal Contact with Soil	Gamma-chlordane	4.1E-03	4.1E-10	2.6E+00 (1.2E+00)	1.1E-09 (2.5E-09)
	HCH (alpha)	6.2E-04	6.3E-11	1.3E+01 (6.3E+00)	7.9E-10 (2.0E-09)
	Heptachlor	1.3E-03	1.3E-10	9.0E+00 (5.7E+00)	1.2E-09 (3.8E-09)
	Heptachlor epoxide	4.1E-03	4.2E-10	1.8E+01 (1.3E+01)	7.6E-09 (2.7E-08)
	Indeno(1,2,3-cd)pyrene	3.1E-01	3.2E-08	1.5E+00 (1.2E+00)	4.6E-08 (5.7E-07)
	Nickel	2.5E+02	2.6E-06	NA (NA)	ND (ND)
Total Risk					2.8E-06 (3.0E-05)
Inhalation of Particulates	1,4-Dichlorobenzene	1.3E+00	2.3E-11	NA (4.0E-02)	ND (9.2E-13)
	4,4'-DDD	8.2E-03	1.5E-13	NA (2.4E-01)	ND (3.5E-14)
	4,4'-DDE	4.1E-03	7.3E-14	NA (3.4E-01)	ND (2.5E-14)
	4,4'-DDT	7.8E-02	1.4E-12	3.4E-01 (3.4E-01)	4.7E-13 (4.7E-13)
	Aldrin	5.5E-03	9.7E-14	1.7E+01 (1.7E+01)	1.6E-12 (1.6E-12)
	Alpha-chlordane	9.9E-04	1.7E-14	1.3E+00 (1.2E+00)	2.3E-14 (2.1E-14)
	Aroclor 1016	3.1E-02	5.4E-13	NA (7.0E-02)	ND (3.8E-14)
	Aroclor-1260	1.0E-01	1.9E-12	NA (2.0E+00)	ND (3.7E-12)
	Benzo(a)anthracene	1.2E+00	2.1E-11	NA (3.9E-01)	ND (8.3E-12)
	Benzo(a)pyrene	1.2E+00	2.1E-11	NA (3.9E+00)	ND (8.3E-11)
	Benzo(b)fluoranthene	1.8E+00	3.2E-11	NA (3.9E-01)	ND (1.2E-11)
	Benzo(k)fluoranthene	4.4E-01	7.8E-12	NA (3.9E-01)	ND (3.0E-12)
	Bis(2-ethylhexyl)phthalate	9.5E-02	1.7E-12	NA (8.4E-03)	ND (1.4E-14)
	Carbazole	9.7E-02	1.7E-12	NA (2.0E-02)	ND (3.4E-14)
	Chromium	2.6E+02	4.7E-09	4.2E+01 (4.2E+01)	2.0E-07 (2.0E-07)
	Chrysene	1.1E+00	1.9E-11	NA (3.9E-02)	ND (7.6E-13)
	Dibenz(a,h)anthracene	1.1E-01	1.9E-12	NA (4.1E+00)	ND (8.0E-12)
	Dieldrin	6.0E-03	1.1E-13	1.6E+01 (1.6E+01)	1.7E-12 (1.7E-12)
	Gamma-chlordane	4.1E-03	7.2E-14	1.3E+00 (1.2E+00)	9.3E-14 (8.6E-14)
	HCH (alpha)	6.2E-04	1.1E-14	6.3E+00 (6.3E+00)	6.9E-14 (6.9E-14)
	Heptachlor	1.3E-03	2.3E-14	4.6E+00 (5.7E+00)	1.1E-13 (1.3E-13)
	Heptachlor epoxide	4.1E-03	7.2E-14	9.1E+00 (1.3E+01)	6.6E-13 (9.4E-13)
	Indeno(1,2,3-cd)pyrene	3.1E-01	5.5E-12	NA (3.9E-01)	ND (2.1E-12)
	Nickel	2.5E+02	4.4E-09	NA (9.1E-01)	ND (4.0E-09)
Total Risk					2.0E-07 (2.0E-07)
Inhalation of VOCs	1,4-Dichlorobenzene	1.3E+00	2.3E-06	NA (4.0E-02)	ND (9.3E-08)
	Total Risk				ND (9.3E-08)
Cumulative Risk					5.1E-06 (3.4E-05)

Notes:

95 UCL mg/kg	95 percent upper confidence limit Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
NA	Not applicable
ND	Not determined
RME	Reasonable maximum exposure

TABLE 15 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
CARCINOGENIC RISKS

- | | |
|------|----------------------------|
| VOCs | Volatile organic chemicals |
| COC | Chemical of concern |
- (1) Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
- (2) 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
- (3) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.
- (4) Cal/EPA risk estimates are presented in parentheses.

TABLE 16
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Incidental Ingestion of Soil	1,4-Dichlorobenzene	1.3E+00	4.0E-08	2.4E-02 (4.0E-02)	9.6E-10 (1.6E-09)
	4,4'-DDD	8.2E-03	2.5E-10	2.4E-01 (2.4E-01)	6.1E-11 (6.1E-11)
	4,4'-DDE	4.1E-03	1.3E-10	3.4E-01 (3.4E-01)	4.3E-11 (4.3E-11)
	4,4'-DDT	7.8E-02	2.4E-09	3.4E-01 (3.4E-01)	8.1E-10 (8.1E-10)
	Aldrin	5.5E-03	1.7E-10	1.7E+01 (1.7E+01)	2.9E-09 (2.9E-09)
	Alpha-chlordane	9.9E-04	3.0E-11	1.3E+00 (1.2E+00)	3.9E-11 (3.6E-11)
	Aroclor 1016	3.1E-02	9.4E-10	NA (7.0E-02)	ND (6.5E-11)
	Aroclor-1260	1.0E-01	3.2E-09	2.0E+00 (2.0E+00)	6.4E-09 (6.4E-09)
	Benzo(a)anthracene	1.2E+00	3.7E-08	7.3E-01 (1.2E+00)	2.7E-08 (4.4E-08)
	Benzo(a)pyrene	1.2E+00	3.7E-08	7.3E+00 (1.2E+01)	2.7E-07 (4.4E-07)
	Benzo(b)fluoranthene	1.8E+00	5.5E-08	7.3E-01 (1.2E+00)	4.0E-08 (6.6E-08)
	Benzo(k)fluoranthene	4.4E-01	1.3E-08	7.3E-02 (1.2E+00)	9.8E-10 (1.6E-08)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.9E-09	1.4E-02 (8.4E-03)	4.1E-11 (2.4E-11)
	Carbazole	9.7E-02	3.0E-09	2.0E-02 (2.0E-02)	5.9E-11 (5.9E-11)
	Chromium	2.6E+02	8.1E-06	NA (NA)	ND (ND)
	Chrysene	1.1E+00	3.4E-08	7.3E-03 (1.2E-01)	2.5E-10 (4.0E-09)
	Dibenz(a,h)anthracene	1.1E-01	3.4E-09	7.3E+00 (4.1E+00)	2.5E-08 (1.4E-08)
	Dieldrin	6.0E-03	1.8E-10	1.6E+01 (1.6E+01)	3.0E-09 (3.0E-09)
	Gamma-chlordane	4.1E-03	1.2E-10	1.3E+00 (1.2E+00)	1.6E-10 (1.5E-10)
	HCH (alpha)	6.2E-04	1.9E-11	6.3E+00 (6.3E+00)	1.2E-10 (1.2E-10)
	Heptachlor	1.3E-03	4.1E-11	4.5E+00 (5.7E+00)	1.8E-10 (2.3E-10)
	Heptachlor epoxide	4.1E-03	1.3E-10	9.1E+00 (1.3E+01)	1.1E-09 (1.6E-09)
	Indeno(1,2,3-cd)pyrene	3.1E-01	9.5E-09	7.3E-01 (1.2E+00)	6.9E-09 (1.1E-08)
	Nickel	2.5E+02	7.7E-06	NA (NA)	ND (ND)
	Total Risk				3.8E-07 (6.1E-07)
Dermal Contact with Soil	1,4-Dichlorobenzene	1.3E+00	3.2E-09	3.0E-02 (4.0E-02)	9.6E-11 (1.3E-09)
	4,4'-DDD	8.2E-03	2.0E-11	4.8E-01 (2.4E-01)	9.7E-12 (2.4E-11)
	4,4'-DDE	4.1E-03	1.0E-11	6.8E-01 (3.4E-01)	6.9E-12 (1.7E-11)
	4,4'-DDT	7.8E-02	1.9E-10	6.8E-01 (3.4E-01)	1.3E-10 (3.3E-10)
	Aldrin	5.5E-03	1.3E-11	3.4E+01 (1.7E+01)	4.6E-10 (1.1E-09)
	Alpha-chlordane	9.9E-04	2.4E-12	2.6E+00 (1.2E+00)	6.3E-12 (1.5E-11)
	Aroclor 1016	3.1E-02	4.5E-10	NA (7.0E-02)	ND (7.9E-11)
	Aroclor-1260	1.0E-01	1.5E-09	4.0E+00 (2.0E+00)	6.2E-09 (7.7E-09)
	Benzo(a)anthracene	1.2E+00	2.9E-09	1.5E+00 (1.2E+00)	4.3E-09 (5.3E-08)
	Benzo(a)pyrene	1.2E+00	2.9E-09	1.5E+01 (1.2E+01)	4.3E-08 (5.3E-07)
	Benzo(b)fluoranthene	1.8E+00	4.4E-09	1.5E+00 (1.2E+00)	6.4E-09 (7.9E-08)
	Benzo(k)fluoranthene	4.4E-01	1.1E-09	1.5E-01 (1.2E+00)	1.6E-10 (1.9E-08)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.3E-10	2.8E-02 (8.4E-03)	6.5E-12 (2.0E-11)
	Carbazole	9.7E-02	2.4E-10	4.0E-02 (2.0E-02)	9.5E-12 (4.8E-11)
	Chromium	2.6E+02	6.5E-08	NA (NA)	ND (ND)
	Chrysene	1.1E+00	2.7E-09	1.5E-02 (1.2E-01)	3.9E-11 (4.8E-09)
	Dibenz(a,h)anthracene	1.1E-01	2.7E-10	1.5E+01 (4.1E+00)	3.9E-09 (1.7E-08)
	Dieldrin	6.0E-03	1.5E-11	3.2E+01 (1.6E+01)	4.7E-10 (1.2E-09)

TABLE 16 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
CARCINOGENIC RISKS

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Risk ^(a)
Dermal Contact with Soil	Gamma-chlordane	4.1E-03	1.0E-11	2.6E+00 (1.2E+00)	2.6E-11 (6.0E-11)
	HCH (alpha)	6.2E-04	1.5E-12	1.3E+01 (6.3E+00)	1.9E-11 (4.8E-11)
	Heptachlor	1.3E-03	3.2E-12	9.0E+00 (5.7E+00)	2.9E-11 (9.2E-11)
	Heptachlor epoxide	4.1E-03	1.0E-11	1.8E+01 (1.3E+01)	1.8E-10 (6.5E-10)
	Indeno(1,2,3-cd)pyrene	3.1E-01	7.6E-10	1.5E+00 (1.2E+00)	1.1E-09 (1.4E-08)
	Nickel	2.5E+02	6.1E-08	NA (NA)	ND (ND)
Total Risk					6.6E-08 (7.3E-07)
Inhalation of Particulates	1,4-Dichlorobenzene	1.3E+00	4.0E-12	NA (4.0E-02)	ND (1.6E-13)
	4,4'-DDD	8.2E-03	2.5E-14	NA (2.4E-01)	ND (6.1E-15)
	4,4'-DDE	4.1E-03	1.3E-14	NA (3.4E-01)	ND (4.3E-15)
	4,4'-DDT	7.8E-02	2.4E-13	3.4E-01 (3.4E-01)	8.2E-14 (8.2E-14)
	Aldrin	5.5E-03	1.7E-14	1.7E+01 (1.7E+01)	2.9E-13 (2.9E-13)
	Alpha-chlordane	9.9E-04	3.1E-15	1.3E+00 (1.2E+00)	4.0E-15 (3.7E-15)
	Aroclor 1016	3.1E-02	9.4E-14	NA (7.0E-02)	ND (6.6E-15)
	Aroclor-1260	1.0E-01	3.2E-13	NA (2.0E+00)	ND (6.5E-13)
	Benzo(a)anthracene	1.2E+00	3.7E-12	NA (3.9E-01)	ND (1.4E-12)
	Benzo(a)pyrene	1.2E+00	3.7E-12	NA (3.9E+00)	ND (1.4E-11)
	Benzo(b)fluoranthene	1.8E+00	5.6E-12	NA (3.9E-01)	ND (2.2E-12)
	Benzo(k)fluoranthene	4.4E-01	1.4E-12	NA (3.9E-01)	ND (5.3E-13)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.9E-13	NA (8.4E-03)	ND (2.5E-15)
	Carbazole	9.7E-02	3.0E-13	NA (2.0E-02)	ND (6.0E-15)
	Chromium	2.6E+02	8.2E-10	4.2E+01 (4.2E+01)	3.4E-08 (3.4E-08)
	Chrysene	1.1E+00	3.4E-12	NA (3.9E-02)	ND (1.3E-13)
	Dibenz(a,h)anthracene	1.1E-01	3.4E-13	NA (4.1E+00)	ND (1.4E-12)
	Dieldrin	6.0E-03	1.9E-14	1.6E+01 (1.6E+01)	3.0E-13 (3.0E-13)
	Gamma-chlordane	4.1E-03	1.3E-14	1.3E+00 (1.2E+00)	1.6E-14 (1.5E-14)
	HCH (alpha)	6.2E-04	1.9E-15	6.3E+00 (6.3E+00)	1.2E-14 (1.2E-14)
	Heptachlor	1.3E-03	4.1E-15	4.6E+00 (5.7E+00)	1.9E-14 (2.3E-14)
	Heptachlor epoxide	4.1E-03	1.3E-14	9.1E+00 (1.3E+01)	1.2E-13 (1.6E-13)
	Indeno(1,2,3-cd)pyrene	3.1E-01	9.6E-13	NA (3.9E-01)	ND (3.7E-13)
	Nickel	2.5E+02	7.7E-10	NA (9.1E-01)	ND (7.1E-10)
Total Risk					3.4E-08 (3.5E-08)
	1,4-Dichlorobenzene	1.3E+00	4.1E-07	NA (4.0E-02)	ND (1.6E-08)
	Total Risk				
Cumulative Risk					4.8E-07 (1.4E-06)

Notes:

95 UCL	95 percent upper confidence limit
mg/kg	Milligrams per kilogram
mg/kg-day	Milligrams per kilogram per day
NA	Not applicable
ND	Not determined
CTE	Central tendency exposure

TABLE 16 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
CARCINOGENIC RISKS

VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA risk estimates.
(4)	Cal/EPA risk estimates are presented in parentheses.

TABLE 17
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Incidental Ingestion of Soil	1,2,4-Trichlorobenzene	1.1E+00	5.4E-07	1.0E-02 (1.0E-02)	5.4E-05 (5.4E-05)
	1,4-Dichlorobenzene	1.3E+00	6.4E-07	NA (2.3E-01)	ND (2.8E-06)
	2-Chlorophenol	1.1E+00	5.4E-07	5.0E-03 (5.0E-03)	1.1E-04 (1.1E-04)
	4,4'-DDT	7.8E-02	3.8E-08	5.0E-04 (5.0E-04)	7.6E-05 (7.6E-05)
	Acenaphthene	1.3E+00	6.6E-07	6.0E-02 (6.0E-02)	1.1E-05 (1.1E-05)
	Acenaphthylene	3.3E-01	1.6E-07	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.7E-09	3.0E-05 (3.0E-05)	9.0E-05 (9.0E-05)
	Alpha-chlordane	9.9E-04	4.8E-10	6.0E-05 (6.0E-05)	8.1E-06 (8.1E-06)
	Anthracene	3.5E-01	1.7E-07	3.0E-01 (3.0E-01)	5.7E-07 (5.7E-07)
	Antimony	6.2E+00	3.0E-06	4.0E-03 (4.0E-03)	7.6E-03 (7.6E-03)
	Aroclor 1016	3.1E-02	1.5E-08	7.0E-05 (7.0E-05)	2.1E-04 (2.1E-04)
	Barium	2.6E+02	1.3E-04	7.0E-02 (7.0E-02)	1.8E-03 (1.8E-03)
	Benzo(g,h,i)perylene	3.0E-01	1.5E-07	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.6E-08	2.0E-02 (2.0E-02)	2.3E-06 (2.3E-06)
	Cobalt	1.6E+01	7.9E-06	6.0E-02 (6.0E-02)	1.3E-04 (1.3E-04)
	Copper	2.0E+02	9.7E-05	3.7E-02 (3.7E-02)	2.6E-03 (2.6E-03)
	Dieldrin	6.0E-03	3.0E-09	5.0E-05 (5.0E-05)	5.9E-05 (5.9E-05)
	Diethyl phthalate	1.1E+00	5.4E-07	8.0E-01 (8.0E-01)	6.7E-07 (6.7E-07)
	Endosulfan I	1.3E-03	6.4E-10	6.0E-03 (6.0E-03)	1.1E-07 (1.1E-07)
	Endosulfan II	2.0E-03	1.0E-09	6.0E-03 (6.0E-03)	1.7E-07 (1.7E-07)
	Endrin	6.8E-03	3.3E-09	3.0E-04 (3.0E-04)	1.1E-05 (1.1E-05)
	Endrin Aldehyde	7.1E-03	3.5E-09	3.0E-04 (3.0E-04)	1.2E-05 (1.2E-05)
	Endrin ketone	7.1E-03	3.5E-09	3.0E-04 (3.0E-04)	1.2E-05 (1.2E-05)
	Fluoranthene	1.3E+00	6.3E-07	4.0E-02 (4.0E-02)	1.6E-05 (1.6E-05)
	Fluorene	1.2E-01	5.9E-08	4.0E-02 (4.0E-02)	1.5E-06 (1.5E-06)
	Gamma-chlordane	4.1E-03	2.0E-09	6.0E-05 (6.0E-05)	3.3E-05 (3.3E-05)
	Heptachlor	1.3E-03	6.5E-10	5.0E-04 (5.0E-04)	1.3E-06 (1.3E-06)
	Heptachlor epoxide	4.1E-03	2.0E-09	1.3E-05 (1.3E-05)	1.5E-04 (1.5E-04)
	Manganese	8.6E+02	4.2E-04	4.7E-02 (4.7E-02)	8.9E-03 (8.9E-03)
	Methoxychlor	2.4E-02	1.2E-08	5.0E-03 (5.0E-03)	2.3E-06 (2.3E-06)
	Molybdenum	1.4E+00	6.8E-07	5.0E-03 (5.0E-03)	1.4E-04 (1.4E-04)
	Nickel	2.5E+02	1.2E-04	2.0E-02 (2.0E-02)	6.1E-03 (6.1E-03)
	Phenanthrene	1.1E+00	5.4E-07	NA (NA)	ND (ND)
	Pyrene	1.8E+00	8.8E-07	3.0E-02 (3.0E-02)	2.9E-05 (2.9E-05)
	Selenium	8.0E-01	3.9E-07	5.0E-03 (5.0E-03)	7.9E-05 (7.9E-05)
	Thallium	8.6E-01	4.2E-07	8.0E-05 (8.0E-05)	5.2E-03 (5.2E-03)
	Vanadium	1.6E+02	8.0E-05	7.0E-03 (7.0E-03)	1.1E-02 (1.1E-02)
	Zinc	3.9E+02	1.9E-04	3.0E-01 (3.0E-01)	6.4E-04 (6.4E-04)
				Total HI	4.6E-02 (4.6E-02)
Dermal Contact with Soil	1,2,4-Trichlorobenzene	1.1E+00	3.1E-07	5.0E-03 (1.0E-02)	6.3E-05 (3.1E-04)
	1,4-Dichlorobenzene	1.3E+00	3.7E-07	NA (2.3E-01)	ND (1.6E-05)
	2-Chlorophenol	1.1E+00	3.1E-07	2.5E-03 (5.0E-03)	1.3E-04 (6.3E-04)
	4,4'-DDT	7.8E-02	2.2E-08	2.5E-04 (5.0E-04)	8.9E-05 (2.2E-04)

TABLE 17 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽¹⁾	95 UCL ⁽²⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽³⁾	Chemical-Specific Hazard Index ⁽⁴⁾
Dermal Contact with Soil	Acenaphthene	1.3E+00	3.8E-07	3.0E-02 (6.0E-02)	1.3E-05 (9.5E-05)
	Acenaphthylene	3.3E-01	9.4E-08	NA (NA)	ND (ND)
	Aldrin	5.5E-03	1.6E-09	1.5E-05 (3.0E-05)	1.0E-04 (2.6E-04)
	Alpha-chlordane	9.9E-04	2.8E-10	3.0E-05 (6.0E-05)	9.4E-06 (2.4E-05)
	Anthracene	3.5E-01	1.0E-07	1.5E-01 (3.0E-01)	6.6E-07 (5.0E-06)
	Antimony	6.2E+00	5.3E-06	8.0E-05 (4.0E-04)	2.2E-03 (4.4E-03)
	Aroclor 1016	3.1E-02	5.2E-08	3.5E-05 (7.0E-05)	1.5E-03 (1.9E-03)
	Barium	2.6E+02	7.5E-06	1.4E-02 (7.0E-02)	5.4E-04 (1.1E-03)
	Benzo(g,h,i)perylene	3.0E-01	8.5E-08	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	2.7E-08	1.0E-02 (2.0E-02)	2.7E-06 (1.4E-05)
	Cobalt	1.6E+01	4.6E-07	1.2E-02 (6.0E-02)	3.8E-05 (7.6E-05)
	Copper	2.0E+02	5.6E-06	7.4E-03 (3.7E-02)	7.6E-04 (1.5E-03)
	Dieldrin	6.0E-03	1.7E-09	2.5E-05 (5.0E-05)	6.9E-05 (1.7E-04)
	Diethyl phthalate	1.1E+00	3.1E-07	4.0E-01 (8.0E-01)	7.8E-07 (3.9E-06)
	Endosulfan I	1.3E-03	3.7E-10	3.0E-03 (6.0E-03)	1.2E-07 (3.1E-07)
	Endosulfan II	2.0E-03	5.8E-10	3.0E-03 (6.0E-03)	1.9E-07 (4.9E-07)
	Endrin	6.8E-03	1.9E-09	1.5E-04 (3.0E-04)	1.3E-05 (3.2E-05)
	Endrin Aldehyde	7.1E-03	2.0E-09	1.5E-04 (3.0E-04)	1.3E-05 (3.4E-05)
	Endrin ketone	7.1E-03	2.0E-09	1.5E-04 (3.0E-04)	1.3E-05 (3.4E-05)
	Fluoranthene	1.3E+00	3.7E-07	2.0E-02 (4.0E-02)	1.8E-05 (1.4E-04)
	Fluorene	1.2E-01	3.4E-08	2.0E-02 (4.0E-02)	1.7E-06 (1.3E-05)
	Gamma-chlordane	4.1E-03	1.2E-09	3.0E-05 (6.0E-05)	3.9E-05 (9.6E-05)
	Heptachlor	1.3E-03	3.8E-10	2.5E-04 (5.0E-04)	1.5E-06 (3.8E-06)
	Heptachlor epoxide	4.1E-03	1.2E-09	6.5E-06 (1.3E-05)	1.8E-04 (4.5E-04)
	Manganese	8.6E+02	2.4E-05	9.4E-03 (4.7E-02)	2.6E-03 (5.3E-03)
	Methoxychlor	2.4E-02	6.7E-09	2.5E-03 (5.0E-03)	2.7E-06 (6.7E-06)
	Molybdenum	1.4E+00	4.0E-08	1.0E-03 (5.0E-03)	4.0E-05 (7.9E-05)
	Nickel	2.5E+02	7.1E-06	4.0E-03 (2.0E-02)	1.8E-03 (3.6E-03)
	Phenanthrene	1.1E+00	3.1E-07	NA (NA)	ND (ND)
	Pyrene	1.8E+00	5.1E-07	1.5E-02 (3.0E-02)	3.4E-05 (2.6E-04)
	Selenium	8.0E-01	2.3E-08	1.0E-03 (5.0E-03)	2.3E-05 (4.6E-05)
	Thallium	8.6E-01	2.4E-08	1.6E-05 (8.0E-05)	1.5E-03 (3.0E-03)
	Vanadium	1.6E+02	4.7E-06	1.4E-03 (7.0E-03)	3.3E-03 (6.7E-03)
	Zinc	3.9E+02	1.1E-05	6.0E-02 (3.0E-01)	1.9E-04 (3.7E-04)
				Total HI	1.5E-02 (3.1E-02)
Inhalation of Particulates	1,2,4-Trichlorobenzene	1.1E+00	5.4E-11	5.7E-02 (5.7E-02)	9.5E-10 (9.5E-10)
	1,4-Dichlorobenzene	1.3E+00	6.4E-11	2.3E-01 (2.3E-01)	2.8E-10 (2.8E-10)
	2-Chlorophenol	1.1E+00	5.4E-11	NA (5.0E-03)	ND (1.1E-08)
	4,4'-DDT	7.8E-02	3.9E-12	NA (5.0E-04)	ND (7.7E-09)
	Acenaphthene	1.3E+00	6.6E-11	NA (6.0E-02)	ND (1.1E-09)
	Acenaphthylene	3.3E-01	1.6E-11	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.7E-13	NA (3.0E-05)	ND (9.1E-09)
	Alpha-chlordane	9.9E-04	4.9E-14	NA (6.0E-05)	ND (8.2E-10)

TABLE I7 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ⁽⁹⁾	95 UCL ⁽⁹⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽⁹⁾	Chemical-Specific Hazard Index ⁽⁹⁾
Inhalation of Particulates	Anthracene	3.5E-01	1.7E-11	NA (3.0E-01)	ND (5.8E-11)
	Antimony	6.2E+00	3.1E-10	NA (NA)	ND (ND)
	Aroclor 1016	3.1E-02	1.5E-12	NA (7.0E-05)	ND (2.2E-08)
	Barium	2.6E+02	1.3E-08	1.4E-04 (1.4E-04)	9.3E-05 (9.3E-05)
	Benzo(g,h,i)perylene	3.0E-01	1.5E-11	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.7E-12	NA (2.0E-02)	ND (2.3E-10)
	Cobalt	1.6E+01	7.9E-10	2.9E-04 (2.9E-04)	2.7E-06 (2.7E-06)
	Copper	2.0E+02	9.8E-09	NA (NA)	ND (ND)
	Dieldrin	6.0E-03	3.0E-13	NA (5.0E-05)	ND (6.0E-09)
	Diethyl phthalate	1.1E+00	5.4E-11	NA (8.0E-01)	ND (6.8E-11)
	Endosulfan I	1.3E-03	6.4E-14	NA (6.0E-03)	ND (1.1E-11)
	Endosulfan II	2.0E-03	1.0E-13	NA (6.0E-03)	ND (1.7E-11)
	Endrin	6.8E-03	3.4E-13	NA (3.0E-04)	ND (1.1E-09)
	Endrin Aldehyde	7.1E-03	3.5E-13	NA (3.0E-04)	ND (1.2E-09)
	Endrin ketone	7.1E-03	3.5E-13	NA (3.0E-04)	ND (1.2E-09)
	Fluoranthene	1.3E+00	6.4E-11	NA (4.0E-02)	ND (1.6E-09)
	Fluorene	1.2E-01	5.9E-12	NA (4.0E-02)	ND (1.5E-10)
	Gamma-chlordane	4.1E-03	2.0E-13	NA (6.0E-05)	ND (3.3E-09)
	Heptachlor	1.3E-03	6.5E-14	NA (5.0E-04)	ND (1.3E-10)
	Heptachlor epoxide	4.1E-03	2.0E-13	NA (1.3E-05)	ND (1.6E-08)
	Manganese	8.6E+02	4.2E-08	1.0E-05 (1.0E-05)	4.2E-03 (4.2E-03)
	Methoxychlor	2.4E-02	1.2E-12	NA (5.0E-03)	ND (2.3E-10)
	Molybdenum	1.4E+00	6.9E-11	NA (NA)	ND (ND)
	Nickel	2.5E+02	1.2E-08	NA (NA)	ND (ND)
	Phenanthrene	1.1E+00	5.4E-11	NA (NA)	ND (ND)
	Pyrene	1.8E+00	8.9E-11	NA (3.0E-02)	ND (3.0E-09)
	Selenium	8.0E-01	4.0E-11	NA (NA)	ND (ND)
	Thallium	8.6E-01	4.2E-11	NA (NA)	ND (ND)
	Vanadium	1.6E+02	8.1E-09	NA (NA)	ND (ND)
	Zinc	3.9E+02	1.9E-08	NA (NA)	ND (ND)
Total HI					4.3E-03 (4.3E-03)
Inhalation Of VOCs from Soil	1,2,4-Trichlorobenzene	1.1E+00	1.7E-06	5.7E-02 (5.7E-02)	3.0E-05 (3.0E-05)
	1,4-Dichlorobenzene	1.3E+00	6.5E-06	2.3E-01 (2.3E-01)	2.8E-05 (2.8E-05)
	2-Chlorophenol	1.1E+00	7.4E-06	NA (5.0E-03)	ND (1.5E-03)
Total HI					5.8E-05 (1.5E-03)
Cumulative HI					6.5E.02 (8.2E-02)

Notes:

95 UCL 95 percent upper confidence limit
 mg/kg Milligrams per kilogram
 mg/kg-day Milligrams per kilogram per day
 HI Hazard index

TABLE 17 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

NA	Not applicable
ND	Not determined
RME	Reasonable maximum exposure
VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
(4)	Cal/EPA HI estimates are presented in parentheses.

TABLE 18
NAS ALAMEDA PARCEL 21S
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95% UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Incidental Ingestion of Soil	1,2,4-Trichlorobenzene	1.1E+00	4.7E-07	1.0E-02 (1.0E-02)	4.7E-05 (4.7E-05)
	1,4-Dichlorobenzene	1.3E+00	5.6E-07	NA (2.3E-01)	ND (2.4E-06)
	2-Chlorophenol	1.1E+00	4.7E-07	5.0E-03 (5.0E-03)	9.4E-05 (9.4E-05)
	4,4'-DDT	7.8E-02	3.3E-08	5.0E-04 (5.0E-04)	6.7E-05 (6.7E-05)
	Acenaphthene	1.3E+00	5.7E-07	6.0E-02 (6.0E-02)	9.6E-06 (9.6E-06)
	Acenaphthylene	3.3E-01	1.4E-07	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.4E-09	3.0E-05 (3.0E-05)	7.9E-05 (7.9E-05)
	Alpha-chlordane	9.9E-04	4.2E-10	6.0E-05 (6.0E-05)	7.1E-06 (7.1E-06)
	Anthracene	3.5E-01	1.5E-07	3.0E-01 (3.0E-01)	5.0E-07 (5.0E-07)
	Antimony	6.2E+00	2.7E-06	4.0E-04 (4.0E-04)	6.7E-03 (6.7E-03)
	Aroclor 1016	3.1E-02	1.3E-08	7.0E-05 (7.0E-05)	1.9E-04 (1.9E-04)
	Barium	2.6E+02	1.1E-04	7.0E-02 (7.0E-02)	1.6E-03 (1.6E-03)
	Benzo(g,h,i)perylene	3.0E-01	1.3E-07	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.1E-08	2.0E-02 (2.0E-02)	2.0E-06 (2.0E-06)
	Cobalt	1.6E+01	6.9E-06	6.0E-02 (6.0E-02)	1.1E-04 (1.1E-04)
	Copper	2.0E+02	8.5E-05	3.7E-02 (3.7E-02)	2.3E-03 (2.3E-03)
	Dieldrin	6.0E-03	2.6E-09	5.0E-05 (5.0E-05)	5.2E-05 (5.2E-05)
	Diethyl phthalate	1.1E+00	4.7E-07	8.0E-01 (8.0E-01)	5.9E-07 (5.9E-07)
	Endosulfan I	1.3E-03	5.6E-10	6.0E-03 (6.0E-03)	9.3E-08 (9.3E-08)
	Endosulfan II	2.0E-03	8.8E-10	6.0E-03 (6.0E-03)	1.5E-07 (1.5E-07)
	Endrin	6.8E-03	2.9E-09	3.0E-04 (3.0E-04)	9.7E-06 (9.7E-06)
	Endrin Aldehyde	7.1E-03	3.0E-09	3.0E-04 (3.0E-04)	1.0E-05 (1.0E-05)
	Endrin ketone	7.1E-03	3.0E-09	3.0E-04 (3.0E-04)	1.0E-05 (1.0E-05)
	Fluoranthene	1.3E+00	5.5E-07	4.0E-02 (4.0E-02)	1.4E-05 (1.4E-05)
	Fluorene	1.2E-01	5.1E-08	4.0E-02 (4.0E-02)	1.3E-06 (1.3E-06)
	Gamma-chlordane	4.1E-03	1.7E-09	6.0E-05 (6.0E-05)	2.9E-05 (2.9E-05)
	Heptachlor	1.3E-03	5.7E-10	5.0E-04 (5.0E-04)	1.1E-06 (1.1E-06)
	Heptachlor epoxide	4.1E-03	1.8E-09	1.3E-05 (1.3E-05)	1.4E-04 (1.4E-04)
	Manganese	8.6E+02	3.7E-04	4.7E-02 (4.7E-02)	7.8E-03 (7.8E-03)
	Methoxychlor	2.4E-02	1.0E-08	5.0E-03 (5.0E-03)	2.0E-06 (2.0E-06)
	Molybdenum	1.4E+00	6.0E-07	5.0E-03 (5.0E-03)	1.2E-04 (1.2E-04)
	Nickel	2.5E+02	1.1E-04	2.0E-02 (2.0E-02)	5.4E-03 (5.4E-03)
	Phenanthrene	1.1E+00	4.7E-07	NA (NA)	ND (ND)
	Pyrene	1.8E+00	7.7E-07	3.0E-02 (3.0E-02)	2.6E-05 (2.6E-05)
	Selenium	8.0E-01	3.4E-07	5.0E-03 (5.0E-03)	6.9E-05 (6.9E-05)
	Thallium	8.6E-01	3.7E-07	8.0E-05 (8.0E-05)	4.6E-03 (4.6E-03)
	Vanadium	1.6E+02	7.0E-05	7.0E-03 (7.0E-03)	1.0E-02 (1.0E-02)
	Zinc	3.9E+02	1.7E-04	3.0E-01 (3.0E-01)	5.6E-04 (5.6E-04)
	Total HI				4.0E-02 (4.0E-02)
Dermal Contact with Soil	1,2,4-Trichlorobenzene	1.1E+00	3.8E-08	5.0E-03 (1.0E-02)	7.5E-06 (3.8E-05)
	1,4-Dichlorobenzene	1.3E+00	4.5E-08	NA (2.3E-01)	ND (1.9E-06)
	2-Chlorophenol	1.1E+00	3.8E-08	2.5E-03 (5.0E-03)	1.5E-05 (7.5E-05)
	4,4'-DDT	7.8E-02	2.7E-09	2.5E-04 (5.0E-04)	1.1E-05 (2.7E-05)
	Acenaphthene	1.3E+00	4.6E-08	3.0E-02 (6.0E-02)	1.5E-06 (1.1E-05)

TABLE 18 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(a)	Chemical-Specific Hazard Index ^(a)
Dermal Contact with Soil	Acenaphthylene	3.3E-01	1.1E-08	NA (NA)	ND (ND)
	Aldrin	5.5E-03	1.9E-10	1.5E-05 (3.0E-05)	1.3E-05 (3.1E-05)
	Alpha-chlordane	9.9E-04	- 3.4E-11	3.0E-05 (6.0E-05)	1.1E-06 (2.8E-06)
	Anthracene	3.5E-01	1.2E-08	1.5E-01 (3.0E-01)	8.0E-08 (6.0E-07)
	Antimony	6.2E+00	6.4E-07	8.0E-05 (4.0E-04)	2.7E-04 (5.3E-04)
	Aroclor 1016	3.1E-02	6.3E-09	3.5E-05 (7.0E-05)	1.8E-04 (2.2E-04)
	Barium	2.6E+02	9.1E-07	1.4E-02 (7.0E-02)	6.5E-05 (1.3E-04)
	Benzo(g,h,i)perylene	3.0E-01	1.0E-08	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	3.3E-09	1.0E-02 (2.0E-02)	3.3E-07 (1.6E-06)
	Cobalt	1.6E+01	5.5E-08	1.2E-02 (6.0E-02)	4.6E-06 (9.2E-06)
	Copper	2.0E+02	6.8E-07	7.4E-03 (3.7E-02)	9.2E-05 (1.8E-04)
	Dieldrin	6.0E-03	2.1E-10	2.5E-05 (5.0E-05)	8.3E-06 (2.1E-05)
	Diethyl phthalate	1.1E+00	3.8E-08	4.0E-01 (8.0E-01)	9.4E-08 (4.7E-07)
	Endosulfan I	1.3E-03	4.5E-11	3.0E-03 (6.0E-03)	1.5E-08 (3.7E-08)
	Endosulfan II	2.0E-03	7.0E-11	3.0E-03 (6.0E-03)	2.3E-08 (5.8E-08)
	Endrin	6.8E-03	2.3E-10	1.5E-04 (3.0E-04)	1.6E-06 (3.9E-06)
	Endrin Aldehyde	7.1E-03	2.4E-10	1.5E-04 (3.0E-04)	1.6E-06 (4.1E-06)
	Endrin ketone	7.1E-03	2.4E-10	1.5E-04 (3.0E-04)	1.6E-06 (4.0E-06)
	Fluoranthene	1.3E+00	4.4E-08	2.0E-02 (4.0E-02)	2.2E-06 (1.7E-05)
	Fluorene	1.2E-01	4.1E-09	2.0E-02 (4.0E-02)	2.1E-07 (1.5E-06)
	Gamma-chlordane	4.1E-03	1.4E-10	3.0E-05 (6.0E-05)	4.6E-06 (1.2E-05)
	Heptachlor	1.3E-03	4.5E-11	2.5E-04 (5.0E-04)	1.8E-07 (4.5E-07)
	Heptachlor epoxide	4.1E-03	1.4E-10	6.5E-06 (1.3E-05)	2.2E-05 (5.4E-05)
	Manganese	8.6E+02	2.9E-06	9.4E-03 (4.7E-02)	3.1E-04 (6.3E-04)
	Methoxychlor	2.4E-02	8.1E-10	2.5E-03 (5.0E-03)	3.2E-07 (8.1E-07)
	Molybdenum	1.4E+00	4.8E-09	1.0E-03 (5.0E-03)	4.8E-06 (9.6E-06)
	Nickel	2.5E+02	8.6E-07	4.0E-03 (2.0E-02)	2.1E-04 (4.3E-04)
	Phenanthrene	1.1E+00	3.8E-08	NA (NA)	ND (ND)
	Pyrene	1.8E+00	6.2E-08	1.5E-02 (3.0E-02)	4.1E-06 (3.1E-05)
	Selenium	8.0E-01	2.8E-09	1.0E-03 (5.0E-03)	2.8E-06 (5.5E-06)
	Thallium	8.6E-01	2.9E-09	1.6E-05 (8.0E-05)	1.8E-04 (3.7E-04)
	Vanadium	1.6E+02	5.6E-07	1.4E-03 (7.0E-03)	4.0E-04 (8.0E-04)
	Zinc	3.9E+02	1.3E-06	6.0E-02 (3.0E-01)	2.2E-05 (4.5E-05)
				Total HI	1.8E-03 (3.7E-03)
Inhalation of Particulates	1,2,4-Trichlorobenzene	1.1E+00	4.8E-11	5.7E-02 (5.7E-02)	8.3E-10 (8.3E-10)
	1,4-Dichlorobenzene	1.3E+00	5.6E-11	2.3E-01 (2.3E-01)	2.4E-10 (2.4E-10)
	2-Chlorophenol	1.1E+00	4.8E-11	NA (5.0E-03)	ND (9.5E-09)
	4,4'-DDT	7.8E-02	3.4E-12	NA (5.0E-04)	ND (6.8E-09)
	Acenaphthene	1.3E+00	5.8E-11	NA (6.0E-02)	ND (9.7E-10)
	Acenaphthylene	3.3E-01	1.4E-11	NA (NA)	ND (ND)
	Aldrin	5.5E-03	2.4E-13	NA (3.0E-05)	ND (7.9E-09)
	Alpha-chlordane	9.9E-04	4.3E-14	NA (6.0E-05)	ND (7.1E-10)
	Anthracene	3.5E-01	1.5E-11	NA (3.0E-01)	ND (5.0E-11)
	Antimony	6.2E+00	2.7E-10	NA (NA)	ND (ND)

TABLE 18 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical ^(a)	95 UCL ^(a) (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ^(b)	Chemical-Specific Hazard Index ^(c)
Inhalation of Particulates	Aroclor 1016	3.1E-02	1.3E-12	NA (7.0E-05)	ND (1.9E-08)
	Barium	2.6E+02	1.1E-08	1.4E-04 (1.4E-04)	8.2E-05 (8.2E-05)
	Benzo(g,h,i)perylene	3.0E-01	1.3E-11	NA (NA)	ND (ND)
	Bis(2-ethylhexyl)phthalate	9.5E-02	4.1E-12	NA (2.0E-02)	ND (2.1E-10)
	Cobalt	1.6E+01	7.0E-10	2.9E-04 (2.9E-04)	2.4E-06 (2.4E-06)
	Copper	2.0E+02	8.6E-09	NA (NA)	ND (ND)
	Dieldrin	6.0E-03	2.6E-13	NA (5.0E-05)	ND (5.2E-09)
	Diethyl phthalate	1.1E+00	4.8E-11	NA (8.0E-01)	ND (5.9E-11)
	Endosulfan I	1.3E-03	5.6E-14	NA (6.0E-03)	ND (9.4E-12)
	Endosulfan II	2.0E-03	8.8E-14	NA (6.0E-03)	ND (1.5E-11)
	Endrin	6.8E-03	2.9E-13	NA (3.0E-04)	ND (9.8E-10)
	Endrin Aldehyde	7.1E-03	3.1E-13	NA (3.0E-04)	ND (1.0E-09)
	Endrin ketone	7.1E-03	3.1E-13	NA (3.0E-04)	ND (1.0E-09)
	Fluoranthene	1.3E+00	5.6E-11	NA (4.0E-02)	ND (1.4E-09)
	Fluorene	1.2E-01	5.2E-12	NA (4.0E-02)	ND (1.3E-10)
	Gamma-chlordane	4.1E-03	1.8E-13	NA (6.0E-05)	ND (2.9E-09)
	Heptachlor	1.3E-03	5.7E-14	NA (5.0E-04)	ND (1.1E-10)
	Heptachlor epoxide	4.1E-03	1.8E-13	NA (1.3E-05)	ND (1.4E-08)
	Manganese	8.6E+02	3.7E-08	1.0E-05 (1.0E-05)	3.7E-03 (3.7E-03)
	Methoxychlor	2.4E-02	1.0E-12	NA (5.0E-03)	ND (2.0E-10)
	Molybdenum	1.4E+00	6.0E-11	NA (NA)	ND (ND)
	Nickel	2.5E+02	1.1E-08	NA (NA)	ND (ND)
	Phenanthrene	1.1E+00	4.8E-11	NA (NA)	ND (ND)
	Pyrene	1.8E+00	7.8E-11	NA (3.0E-02)	ND (2.6E-09)
	Selenium	8.0E-01	3.5E-11	NA (NA)	ND (ND)
	Thallium	8.6E-01	3.7E-11	NA (NA)	ND (ND)
	Vanadium	1.6E+02	7.1E-09	NA (NA)	ND (ND)
	Zinc	3.9E+02	1.7E-08	NA (NA)	ND (ND)
					Total HI 3.8E-03 (3.8E-03)
Inhalation of VOCs	1,2,4-Trichlorobenzene	1.1E+00	1.5E-06	5.7E-02 (5.7E-02)	2.6E-05 (2.6E-05)
	1,4-Dichlorobenzene	1.3E+00	5.7E-06	2.3E-01 (2.3E-01)	2.5E-05 (2.5E-05)
	2-Chlorophenol	1.1E+00	1.1E+00	NA (6.5E-06)	ND (1.3E-03)
					Total HI 5.1E-05 (1.3E-03)
					Cumulative HI 4.6E-02 (4.9E-02)

Notes:

- 95 UCL 95 percent upper confidence limit
- mg/kg Milligrams per kilogram
- mg/kg-day Milligrams per kilogram per day
- HI Hazard index
- NA Not applicable
- ND Not determined
- CTE Central tendency exposure

TABLE 18 (Continued)
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 SOIL SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

VOCs	Volatile organic chemicals
COCs	Chemical of concern
(1)	Aluminum, arsenic, beryllium, cadmium, lead, and mercury were eliminated as COCs based on background comparisons.
(2)	The 95 UCL concentration was used as the exposure point concentration. If the 95 UCL concentration exceeded the maximum detected concentration, the maximum detected concentration was used as the exposure point concentration.
(3)	Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
(4)	Cal/EPA HI estimates are presented in parentheses.

TABLE 19
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
OCCUPATIONAL RME SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical	95 UCL ⁽¹⁾ (mg/L)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽²⁾	Chemical-Specific Hazard Index ⁽³⁾
Inhalation of Indoor VOCs	1,1,1-Trichloroethane	3.0E-03	1.4E-06	2.9E-01 (2.9E-01)	4.8E-06 (4.8E-06)
	Acetone	2.3E-02	2.4E-08	NA (1.0E-01)	ND (2.4E-07)
	Methyl ethyl ketone	2.0E-03	- 1.4E-09	2.9E-01 (2.9E-01)	4.9E-09 (4.9E-09)
				Total HI	4.8E-06 (4.8E-06)
				Cumulative HI	4.8E-06 (4.8E-06)

Notes:

95 UCL 95 percent upper confidence limit
 mg/L Milligrams per liter
 mg/kg-day Milligrams per kilogram per day
 HI Hazard index
 RME Reasonable maximum exposure
 VOCs Volatile organic chemicals
 COC Chemical of concern

- (1) Chemical-specific indoor air concentrations were determined as (groundwater concentration * Henry's Law Constant / 100,000). (PRC 1996)
- (2) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
- (3) Cal/EPA HI estimates are presented in parentheses.

TABLE 20
NAS ALAMEDA PARCEL 215
FINDING OF SUITABILITY TO TRANSFER (FOST)
TIER 2 GROUNDWATER SCREENING EVALUATION
OCCUPATIONAL CTE SCENARIO
NONCARCINOGENIC HAZARD INDICES

Exposure Pathway	Chemical	95 UCL ⁽¹⁾ (mg/kg)	Chronic Daily Intake (mg/kg-day)	Toxicity Value ⁽²⁾	Chemical-Specific Hazard Index ⁽³⁾
Inhalation of Indoor VOCs	1,1,1-Trichloroethane	3.0E-03	2.9E-08	2.9E-01 (2.9E-01)	1.0E-07 (1.0E-07)
	Acetone	2.3E-02	5.1E-10	NA (1.0E-01)	ND (5.1E-09)
	Methyl ethyl ketone	2.0E-03	- 3.1E-11	2.9E-01 (2.9E-01)	1.1E-10 (1.1E-10)
				Total HI	1.0E-07 (1.0E-07)
				Cumulative HI	1.0E-07 (1.0E-07)

Notes:

95 UCL 95 percent upper confidence limit
 mg/kg Milligrams per kilogram
 mg/kg-day Milligrams per kilogram per day
 HI Hazard index
 CTE Central tendency exposure
 VOCs Volatile organic chemicals
 COC Chemical of concern

- (1) Chemical-specific indoor air concentrations were determined as (groundwater concentration * Henry's Law Constant / 100,000). (PRC 1996)
- (2) Toxicity values used for the California EPA calculations are presented in parentheses. Route-to-route extrapolation was conducted per EPA Region 9 and DTSC guidance (EPA 1998, OEHHA 1994). Additionally, oral toxicity values were not adjusted for gastrointestinal (GI) absorption for Cal/EPA HI estimates.
- (3) Cal/EPA HI estimates are presented in parentheses.

Toxicological Profiles of Chemicals of Potential Concern

The following section summarizes the toxicity associated with the COCs identified in soil and groundwater at Parcel 215, at Todd Shipyard, Alameda Point. The toxicity profiles describe the use or source, the major adverse acute and chronic health effects, toxicity values, critical effects, uncertainty underlying the toxicity values, and carcinogenic potential for each chemical.

Acetone

Acetone is widely used in industry as a neutral organic solvent for oils, waxes, varnishes, and plastics. Like all organic solvents, acetone has the ability to dissolve fats and can dry out tissue, particularly skin, on contact. Due to its high volatility, it is readily absorbed by inhalation. It can also be absorbed by ingestion and can to a lesser extent penetrate the skin barrier. Transient irritation in the eyes, nose, and throat can result from exposure to acetone vapor, but damage is not usually extensive or protracted (Cornish 1975). In addition to its irritant properties, it produces narcotic effects on the central nervous system (CNS) in humans at elevated atmospheric concentrations.

Studies in laboratory animals have revealed that the predominant adverse effect resulting from subchronic oral exposure to acetone is an increase in organ weights, primarily involving the liver and kidney. These changes were, for the most part, nonlethal. There were no significant toxic effects from chronic inhalation of low doses. A number of studies indicate that acetone potentiates the liver toxicity induced by other organic solvents such as carbon tetrachloride and 1,1,1-trichloroethane (TCA).

Acetone is a class D carcinogen (not classifiable) in EPA's weight-of-evidence classification system (EPA 1998), indicating that there is a lack of human data and insufficient or equivocal animal data. Acetone is not considered to be mutagenic or teratogenic, based on *in vitro* tests, in which acetone produced no chromosomal aberrations or sister chromatid exchanges.

The oral reference dose (RfD) for acetone is 0.1 milligrams per kilogram per day (mg/kg-day), with an uncertainty factor of 1,000 (EPA 1998). The critical effect is based on an increase in liver and kidney weights and tubular degeneration of the kidneys. In addition to increased kidney weight, a dose-dependent correlation with hyaline droplet formation in the kidneys was also observed. An inhalation RfD is currently unavailable from EPA.

Aldrin and Dieldrin

Aldrin and dieldrin were used primarily to control corn pests by applying the compounds to soil. The compounds were also used in the citrus industry, and for general crop protection from insects, timber preservation, termite-proofing, and the construction of plastic and rubber coverings for electrical and telecommunication cables and plywood and building boards. In 1970, the U.S. Department of Agriculture banned all uses of aldrin and dieldrin due to the harmful effects associated with these compounds (ATSDR 1993a).

The initial and major step in the biotransformation of aldrin in experimental animals is the formation of epoxide dieldrin. This process occurs mainly in the liver, and to a lesser extent in the lungs and skin. Several metabolic studies indicate that dieldrin is absorbed by the gastrointestinal tract and is transported via the hepatic portal vein. An animal study indicated

deposition in the liver, blood, and stomach following oral exposure. Following oral exposure, dieldrin is redistributed primarily to the adipose tissue and blood. Animal studies show rapid dermal absorption with the amount absorbed approximately equal to the amount administered. Excretion of aldrin and dieldrin in humans is mainly in the feces via the bile. Dieldrin is also excreted via lactation. Animals also excrete aldrin and dieldrin through the urine.

An acute oral dose of dieldrin causes salivation and convulsions. A study of dieldrin levels in women and fetuses during labor revealed detectable levels of dieldrin in the placenta, amniotic fluid, and fetal blood. Oral exposure by animals have shown significant increases in cleft palate, open eye, and webbed foot. Animal studies have also shown an increase in post natal death. Several animal studies reported increased hepatic tumors, indicating that aldrin and dieldrin are carcinogenic when ingested. Workers exposed to aldrin and/or dieldrin via dermal application experienced CNS effects including headaches, dizziness, hyperirritability, general malaise, nausea, vomiting, anorexia, muscle twitching, and myoclonic jerking.

The oral RfD for aldrin is 0.00003 mg/kg-day, based on a chronic rat feeding study which resulted in liver toxicity (EPA 1998). A uncertainty factor of 1,000 was used to account for interspecies, intraspecies, and the use of an RfD based on a lowest observed adverse effect level (LOAEL) rather than a no observed adverse effect level (NOAEL). The confidence in this RfD is medium.

The oral RfD for dieldrin is 0.00005 mg/kg-day, based on a 2-year rat feeding study which produced liver lesions (EPA 1998). An uncertainty factor (UF) of 100 accounts for the uncertainty associated with the extrapolation of dose levels from lab animals to humans and the uncertainty in the threshold for sensitive humans. The confidence in this RfD is medium (EPA 1998).

Aldrin and dieldrin have been classified as B2 carcinogens (1998) by EPA. The EPA and Cal/EPA OEHHA cancer slope factors (CSFs) for aldrin and dieldrin are 17 and 16 (mg/kg-day)⁻¹, respectively, for both oral and inhalation based on liver carcinomas in mice (EPA 1998, OEHHA 1994).

Aluminum

Aluminum is widely distributed in nature; the earth's crust contains more aluminum than any other metal. Aluminum is widely used for structures, durable goods, and food packaging. Commercial compounds include abrasives, antacids, and bentonite clay (Stokinger 1981; Carson, Ellis, and McCann 1986; ATSDR 1992a).

Absorption of aluminum and aluminum compounds following ingestion is minimal. Because aluminum salts can be converted to aluminum phosphate salts in the gastrointestinal tract, preventing absorption and increasing excretion in the feces. Aluminum compounds can affect absorption of fluoride, calcium, and iron compounds in the gastrointestinal tract and alter intestinal function. Normal daily intake averages 10 to 100 milligrams (mg) in the diet.

Some aluminum salts and compounds have therapeutic applications. However, massive oral doses of aluminum cause GI disturbance and may interfere with phosphate absorption to produce bone deformations characterized by rickets. Inhalation of aluminum dust has been associated with lung fibrosis in occupational workers with histories of lengthy and heavy exposure. Based

on occupational exposures, there is little evidence of toxicity at low levels of aluminum. (Stokinger 1981) One group of people known to be adversely affected by aluminum uptake are those with kidney disease who get aluminum from the dialysis fluid. Their kidneys cannot excrete the excess aluminum so they develop Adialysis dementia and osteomalacia. Persons with nerve diseases such as Alzheimer's Syndrome have deposits of aluminum in their CNS, but this is now thought to be an effect, rather than a cause, of the disease.

EPA lists an oral RfD of 1.0 mg/kg-day, with an uncertainty factor of 100. The critical effects are neurotoxicity and decreased body weight gain (EPA 1998). No inhalation RfD is available for aluminum. Additionally, EPA has not determined the carcinogenic potential or derived a CSF for aluminum.

Antimony

Antimony has a highly complex chemistry and is a common pollutant in urban air. It is used as a metal to harden lead and copper and as a nonmetal to flameproof textiles. Antimony is an additive for rubber and ceramics, and has recently found application in semiconductor devices. It is used medicinally as a parasiticide, an emetic, and an expectorant (Stokinger 1981; Carson, Ellis, and McCann 1986; ATSDR 1992b).

Antimony is moderately absorbed after oral doses. It is concentrated to some extent in the blood and liver. Excretion of the pentavalent form occurs primarily in the urine and the trivalent form in the feces.

Acute doses can produce local irritation. At high concentrations, antimony can cause death from pulmonary edema. Workers exposed by inhalation can develop gastrointestinal symptoms as well as contact lesions on the skin. Repeated exposure of workers can cause pneumoconiosis, liver damage, gastrointestinal ulcers, and an increase in heart disease. Isolated reports indicate adverse reproductive effects and lung tumors in exposed workers, but the results are inconclusive.

EPA has not determined the carcinogenic potential or derived a CSF for antimony. The oral RfD for antimony is 0.0004 mg/kg-day with an uncertainty factor of 1,000. This value is based on the critical effects of changes in blood glucose and cholesterol and a decrease in longevity (EPA 1998). No inhalation RfD is available for antimony.

Arsenic

Arsenic is a semi-metal with widespread distribution. It is used in metallurgy to harden copper, lead, and alloys; in the manufacture of certain types of glass; and in limited pesticide applications. The largest current use is as a wood preservative. Historically, inorganic and organic forms of arsenic were widely used for medicinal purposes (Carson, Ellis, and McCann 1986, ATSDR 1993b).

Humans are exposed to arsenic primarily through chronic ingestion of a variety of organic and inorganic forms. Food constitutes the largest source of daily exposure to arsenic. Humans consume an average of 25 to 50 micrograms per day ($\mu\text{g}/\text{day}$) arsenic from food. The particular form of arsenic ingested is a critical factor, because trivalent arsenic compounds are more toxic than pentavalent forms. However, individuals at hazardous waste sites are more likely to be

exposed to the pentavalent form because natural oxidation processes in the environment favor this formation. Water-soluble arsenic is efficiently absorbed from the gastrointestinal tract and circulated throughout the body. Trivalent arsenic is detoxified in the liver by conversion to methyl arsenic acid and dimethyl arsenic acid, which are the principal forms excreted in the urine. Pentavalent arsenic is reduced to the trivalent form in the liver. The body burden of arsenic can reach considerable levels, because it can be sequestered in nails, hair, bones, teeth, skin, liver, kidneys, and lungs. There is good, but not conclusive, evidence that arsenic is an essential micronutrient in some animal species.

Adverse health effects produced by arsenic are highly dose-dependent. For example, at low concentrations, arsenic may be an essential nutrient and substitute for phosphorus in key biochemical reactions. However, at high levels arsenic has been recognized as an effective human poison with potentially lethal side effects. Large single doses produce death by cardiopulmonary collapse. Lower doses can produce a severe form of peripheral arteriosclerosis known as blackfoot disease, which leads to gangrene of the extremities.

Chronic exposure to low levels of arsenic can produce malaise and fatigue, gastrointestinal distress, anemia and basophilic stippling, and neuropathy. The prominent pathological effect, however, is plantar and palmar hyperpigmentation and hyperkeratotic lesions. Although these lesions in themselves do not pose a significant health concern, they may ultimately develop into malignant skin cancers and metastasize to other parts of the body.

The oral RfD for arsenic is 0.0003 mg/kg-day, with an uncertainty factor of 3 (EPA 1998). The oral RfD is an estimated value; a consensus has not been reached among EPA scientists. Different interpretations of the data supports a value of two to three times the RfD presented by EPA. This RfD is based on the critical effects of pathological changes in skin as well as lesions in blood vessels (EPA 1998). No inhalation RfD is available for arsenic.

Arsenic is a class A carcinogen (a known human carcinogen) based on observations of increased lung and skin cancer in exposed human populations (EPA 1998). The EPA oral CSF is 1.5 (mg/kg-day)⁻¹ and inhalation CSF is 15 (mg/kg-day)⁻¹ (EPA 1998). The OEHHA presents an inhalation CSF of 12 (mg/kg-day)⁻¹ (OEHHA 1994).

Barium

Barium is used in various alloys, paints, soap, paper, and rubber. It is also used in the manufacture of ceramics and glass. Barium is widely distributed in the environment and is usually found together with calcium. Studies suggest it may be an essential element in trace amounts since barium-free diets cause abnormal growth in laboratory animals. At elevated levels, it is among the more toxic alkaline earth metals (Stokinger 1981, Carson, Ellis, and McCann 1986, NLM 1995).

Absorption of barium compounds depends on the solubility of the compound. Approximately two percent is absorbed from the normal diet. It is distributed throughout the body, with about two-thirds being deposited in the bones. Excretion is slow, occurring primarily through the feces. Little barium is excreted in the urine, because almost all is reabsorbed in the renal tubules.

The effects of acute barium toxicity are observed primarily in skeletal muscle. The mechanism likely involves interference with potassium uptake from the gastrointestinal tract, producing a

hypokalemic condition. Following ingestion, gastrointestinal distress (nausea, vomiting, colic, diarrhea) is initially observed. Later symptoms are manifest as peripheral nervous system (PNS) disturbances and electrocardiographic irregularities which can lead to cardiac fibrillation, general muscle paralysis, and death from respiratory arrest.

The chronic toxic effects of barium have not been well described, except for baritosis, a benign pneumoconiosis resulting from occupational inhalation exposures to barite, an insoluble sulfate salt.

EPA lists an oral RfD for barium as 0.07 mg/kg-day with an uncertainty factor of 3. The uncertainty factor accounts for the protection of sensitive individuals within a population. The oral RfD is based on the critical effect of increased blood pressure in a subchronic human study. The confidence for this RfD is medium (EPA 1998). HEAST lists an inhalation RfD for barium of 0.00014 mg/kg-day with an uncertainty factor of 1,000 based on a reproduction study (EPA 1997). EPA has not determined the carcinogenic potential or derived a CSF for barium.

Benzenehexachloride

Alpha-, beta-, delta-, and gamma-BHC (lindane), also called alpha-, beta, delta- and gamma-hexachlorocyclohexane (HCCH), are used as insecticides, as a mixture or as pure lindane. BHC is used as an insecticide primarily for fruit and vegetable crops, for seed treatment, in forestry, and for animal treatment. Gamma-BHC was used in vaporizers until this use was banned in 1977. Gamma-BHC is registered for use on fruit, vegetables, ornamental plants, tobacco, greenhouse vegetables, and in forestry and domestic outdoor and indoor use by homeowners. Medically, gamma-BHC is used topically to treat head and body lice and is available in 1 percent preparations as a lotion, cream, or shampoo (Deichmann and Keplinger 1981, NLM 1995).

In 1983, the EPA issued a notice of intent to cancel pesticide products containing gamma-BHC. The EPA no longer permits use of gamma-BHC for any direct aquatic application, livestock application, or structure application. Application of gamma-BHC to domestic pets is limited to certified applicators.

The BHC isomers have been detected in the blood serum, adipose tissue, and semen of occupationally and environmentally exposed individuals. Oral absorption studies performed on animals show absorption of gamma-BHC through the gastrointestinal tract. BHC isomers are lipophilic and have been observed in adipose tissue, the CNS, and blood serum following inhalation, oral and dermal exposures. Generally, distribution is greatest in adipose tissue, followed by brain, kidney, muscle, lungs, heart, spleen, liver, and blood.

In vitro studies have shown that an epoxide forms during the metabolism of pentachlorocyclohexane. This halogenated stable hydrocarbon epoxide metabolite may be responsible for the mutagenic and carcinogenic effects of gamma-BHC. The detoxification seems to be dependent on the p-450 oxidative system. Humans exposed to BHC via inhalation excrete gamma-BHC in the urine, milk, and semen. Oral animal studies have shown that very little gamma-BHC is excreted unaltered.

Paresthesia (numb or tingling sensation) of the face and extremities, headache, and vertigo have been reported in workers occupationally exposed via inhalation. The most common effect from

dermal and oral exposure to humans and animals is neurological. Seizures and convulsions were observed in acute cases. Animals exposed to beta-BHC show similar effects, but those exposed to alpha-BHC did not. Acute 30-day animal studies which reported an increase in the glycogen content of the uterus, cervix, and vagina but no increase in organ weight in the female. The study also showed testicular atrophy, degeneration of the seminiferous tubules, and disruption of spermatogenesis in the male. A 13-week study showed significant increases in ovary and uterus weight and atrophy of the uterus and ovary. In animals, alpha- and gamma-BHC isomers have produced liver cancer following oral exposure.

EPA classified alpha-BHC as a B2 carcinogen (probable human carcinogen) with an oral CSF of 6.3 (mg/kg-day)⁻¹. Beta-BHC is a C carcinogen (possible human carcinogen) with a oral CSF of 1.8 (mg/kg-day)⁻¹. Delta-BHC is a class D carcinogen (inconclusive evidence of carcinogenicity). Gamma-BHC has an oral RfD of 0.0003 mg/kg-day, and an oral CSF of 1.3 (mg/kg-day)⁻¹ (EPA 1997, 1998).

Carbazole

Carbazole is a polycyclic aromatic hydrocarbon which contains a nitrogen in the ring structure. It is used as a dye intermediate and in making photographic plates sensitive to ultraviolet light (Budavari 1989; NLM 1995). Very little toxicity information on carbazole is available. Carbazole seems to be generally similar to the polycyclic aromatic hydrocarbons described elsewhere.

EPA has classified carbazole as a B2 carcinogen (probable human carcinogen), with an oral CSF of 0.02 (mg/kg-day)⁻¹ based on liver tumors in a mouse study (EPA 1997). No inhalation CSF and no RfD are available.

Chlordane

As of 1988, all commercial use of chlordane in the U.S. has been prohibited. Between 1983 and 1988, the sole use of chlordane was to control subterranean termites. Chlordane was at one time widely used as a pesticide for the control of insects on various types of agricultural crops and vegetation. The main uses of chlordane in the 1970s were pest control operations mostly on termites, agricultural crops including corn and citrus, home lawns and gardens, and turf and ornamental vegetation (ATSDR 1994a).

Chlordane is absorbed by the lungs via the inhalation pathway. Following oral exposure, chlordane was present in blood plasma, adipose tissue, spleen, brain, kidney, and liver. Levels of chlordane in blood and milk fat increase with increasing duration of exposure. There is limited information on the metabolism of chlordane. Heptachlor epoxide and oxychlordane metabolites of chlordane have been found in animals. It has been known that radio labeled cis-chlordane was traced and found to be broken down to water-soluble metabolites. Lactation is a significant route of excretion of chlordane. Chlordane itself has not been found in human milk but the metabolites and related chemicals present in commercially available products for example, oxychlordane, trans-nonachlor, and heptachlor epoxide, have been found in human milk. Inhaled chlordane shows 52 percent excretion via the feces and 12 percent excretion via the urine.

Neurological symptoms such as headaches, dizziness, vision problems, incoordination,

irritability, excitability, weakness, muscle twitching, and convulsions were reported in humans who were accidentally exposed to chlordane. Oral exposure to chlordane presents the same effects, including coma. Chlordane administered to male rats resulted in increased androgen receptor sites in the ventral prostate. Testicular degeneration was observed in a 30-day rat study. Dietary administration of chlordane is associated with the development of hepatocellular carcinomas in animals.

Chlordane is a B2 carcinogen (probable human carcinogen). OEHHA lists a CSF of 1.2 (mg/kg-day)⁻¹ and EPA lists a CSF of 1.3 (mg/kg-day)⁻¹ for oral and inhalation exposure (OEHHA 1994, EPA 1998). EPA presents an oral RfD of 0.00006 mg/kg-day based on a 30-month rat feeding study (EPA 1998). The study produced regional liver hypertrophy in females with an uncertainty factor of 1,000. The uncertainty factor accounts for interspecies and intraspecies differences, a lack of adequate reproductive and chronic studies, and inadequate sensitive endpoints studied in existing studies, especially since chlordane is known to bioaccumulate. No inhalation RfD is available for chlordane.

2-Chlorophenol

The chemical 2-chlorophenol is used as an intermediate in the production of more highly chlorinated phenols, phenolic resins, and dyes. A mixture of all three chlorophenol isomers is used as a disinfectant, bactericide, and germicide. The properties and uses of the isomers are very similar (Deichmann and Keplinger 1981; NLM 1995).

The chemical 2-chlorophenol is well absorbed through ingestion and inhalation. Some skin absorption also occurs. The absorbed chemical is metabolized in the liver to a variety of products that depend on species exposed. Metabolites are excreted in urine and feces.

The chemical is irritating on contact. Its pure liquid form can produce lesions, leading to gastrointestinal upset after ingestion and chemical burns on the skin following dermal contact. Large single doses produce a variety of effects, apparently because 2-chlorophenol is a general tissue poison that does not have a specific adverse effect. Major effects include an increase in respiration followed by a decrease, motor weakness, shock, coma, and death from respiratory, circulatory, or cardiac failure. In some animal species, but rarely in humans, tremors and convulsions occur. Repeated lower doses lead to contact dermatitis, methemoglobin, hemolytic anemia, and kidney lesions.

The oral RfD for 2-chlorophenol is 0.005 mg/kg-day, with an uncertainty factor of 1,000 (EPA 1998). During a study conducted on rats, critical effects included decreased reproductive performance (such as smaller litter size or more stillborns) apparently due to nonspecific toxic effects. Confidence in the RfD is low, and data are insufficient to determine an inhalation RfD. EPA has not evaluated the carcinogenicity of 2-chlorophenol.

Chromium

Chromium is an element that occurs naturally in many different mineralogic forms and can be present in higher concentrations at mining sites. Chromium has many industrial uses including steel fabrication, paint manufacturing, and chrome plating (Carson, Ellis, and McCann 1986; ATSDR 1993c).

The primary routes of chromium exposure are ingestion and inhalation. Its absorption from the lungs and gastrointestinal tract is significant but not complete. Chromium exists in a variety of oxidation states. Like several other elements, its toxicity depends on the particular oxidation state under investigation. (ATSDR 1993c) Hexavalent chromium (chromium VI) is the most toxic. Examples of the more familiar forms of hexavalent chromium are the soluble salts potassium dichromate, sodium dichromate, potassium chromate, and sodium chromate. In contrast to the toxicity of the hexavalent form, trivalent chromium (chromium III) is an essential nutrient. Chromium is necessary for several biochemical reactions in carbohydrate metabolism and insulin production. Preliminary evidence indicates that hexavalent chromium is reduced *in vivo* to trivalent chromium in humans. This may represent a significant detoxification mechanism.

Acute chromium toxicity, although seldom seen, is characterized by hemorrhage and fluid loss leading to hypovolemic shock. Chronic toxicity is most commonly reported after industrial exposure to chromate, or to mixed chromate and chromic acid forms of chromium. In this setting, the routes of exposure are inhalation and dermal contact, with pathological effects developing at the site of exposure. Typical symptoms of chronic exposure include allergic contact dermatitis, skin ulcers, rhinitis, and nasal ulceration with nasal septum perforation, with the latter condition is pathognomonic of chromium exposure that the perforations are commonly referred to as "chrome holes." Lung tumors are common in chromate-exposed workers, and particularly in those who smoke cigarettes, who appear to be predisposed. Although not as common, liver and kidney lesions have also been reported.

EPA presents an oral RfD of 0.005 mg/kg-day for chromium VI based on a 1 year drinking study on rats (EPA 1998). The uncertainty factor is 500 to reflect interhuman and interspecies variability and an additional factor of 5 to compensate for the less-than-lifetime exposure duration of the study. The oral RfD for chromium III is 1 mg/kg-day, with an uncertainty factor of 100. No inhalation RfDs are available for chromium VI or chromium III.

EPA lists no oral CSF for chromium VI, but lists an inhalation CSF of 290 (mg/kg-day)⁻¹. OEHHA has an oral CSF of 0.42 (mg/kg-day)⁻¹ and an inhalation CSF of 510 (mg/kg-day)⁻¹ for chromium VI (OEHHA 1994).

Cobalt

Cobalt is a relatively rare metal used in the production of copper alloys, permanent magnets, and in nuclear technology. Its salts are used in paint driers, as catalysts, and in the production of numerous pigments (ATSDR 1992c, Carson, Ellis, and McCann 1986).

Cobalt is an essential element and is an integral component of Vitamin B12, which is necessary in the production of red blood cells. Without it, pernicious anemia can develop. Small doses are well absorbed in the intestines, but increased levels tend not to cause significant accumulation. The highest concentrations are in the muscle, fat, liver, heart, and hair. Excretion is primarily in the urine.

Excessive ingestion of cobalt results most commonly in polycythemia vera or an increase in the number of red blood cells. Toxicity from high therapeutic doses can result in vomiting and diarrhea. Chronic ingestion of elevated cobalt can result in goiter. Myocardiopathy characterized by enlargement of the heart and low blood pressure has been reported to result

from consumption of beer with a cobalt-containing additive. Industrial exposures have resulted in respiratory dysfunction and skin sensitization similar to allergic contact dermatitis.

The oral RfD for cobalt is 0.06 mg/kg-day and the inhalation RfD is 0.00029 mg/kg-day (EPA 1998). No CSFs are available for cobalt.

Copper

Copper is a reddish metal that is naturally occurring in rock, soil, water, sediment, and air. Copper is present at an average of 50 parts per million (ppm) in the earth's crust. Copper also occurs naturally in plants and animals. Copper is well known as both an essential trace mineral nutrient and a toxicant. Copper is the main component of alloys which include brass, bronze, and gun metal. All American coins are made of copper alloys (ATSDR 1990a).

Soluble copper salts are well absorbed by the human body. Copper which is taken orally is bound to plasma albumin and amino acids in the portal blood and is transported to the liver. Copper-containing enzymes are involved in hemoglobin synthesis, in maintaining connective tissue, and in other physiological processes. Several studies have also shown that exposure to copper induces metallothionein synthesis. Excretion occurs via the bile into the feces.

Acute toxic effects include gastrointestinal irritation, vomiting (including blood), low blood pressure, jaundice due to liver necrosis, and coma. Some cases of hemolytic anemia have been seen. Wilson's disease is a genetic disease that is characterized by dysfunctional copper metabolism and increased tissue levels of copper. It is treated by removing the excess copper from the body with a suitable chelating agent. In the absence of this disease, chronic copper toxicity is practically unknown, because of the body's homeostatic mechanisms. Headache, drowsiness, and vertigo were reported in factory workers exposed to copper dust.

EPA and OEHHA list no toxicity values for copper at the present time, however, HEAST presents an oral RfD of 0.037 mg/kg-day, derived from the drinking water standard of 1.3 milligrams per liter (mg/L) (EPA 1997). No inhalation RfD is available for copper.

4,4'-DDD, 4,4'-DDE, and 4,4'-DDT

During World War II, DDT was extensively used for the control of malaria, typhus, and other diseases that are transmitted by insects. In the early 1970s, DDT was banned in the U.S. from agricultural uses; it may still be used for public health purposes. It has been used world wide in agriculture to control insects. In the U.S., the primary crops treated with DDT were cotton, peanuts, and soybeans. One form of DDD was also used medically in the treatment of cancer of the adrenal gland. DDE and DDD are the breakdown products of DDT and impurities in the commercial product and, therefore, are usually found in association with DDT (ATSDR 1994b, NLM 1995).

When DDT is inhaled it is mainly deposited in the upper respiratory tract and, due to the action of the mucocilliary apparatus, is eventually swallowed. In an occupational setting, absorption can occur via inhalation, ingestion, and dermal contact. Evidence of DDT absorption is the appearance of DDA (a DDT metabolite) in the urine and the presence of DDT in the adipose tissue and plasma or serum. DDT and its metabolites, DDE and DDD, are lipid soluble compounds, and once absorbed readily distribute to all body tissues in proportion to the tissues'

lipid content. It has been proposed that DDT is initially metabolized into two intermediary metabolites, DDE and DDD. In rats, DDE is slowly converted by the liver to DDA. DDD is rapidly detoxified and metabolized primarily in the kidney to either 2,2-bis(p-chlorophenyl)ethanol or to DDA. DDT is also converted by dehydro-chlorination to DDE, although at a slower rate than DDT to the DDD pathway. The major route of excretion of DDT in humans appears to be in the urine, but also occurs via the feces, semen, and breast milk.

Persons exposed to DDT following oral exposure of a moderate dose have shown signs of perspiration, headache, and nausea. High doses have reflected sensitivity to the lower part of the face, uncertain gait, malaise, cold moist skin, and hypersensitivity. In several animal species, acute oral exposure to high doses of DDT has been associated with DDT-induced tremors or myoclonus (abrupt, involuntary contractions of skeletal muscles), hyperexcitability, and convulsions. Chronic exposure of experimental animals to DDT is associated with tremors and hyperirritability.

There is no evidence regarding developmental effects in humans following oral exposure to DDT, DDE, and DDD. However, there is evidence in animals of DDT-induced developmental effects such as decreased fetal body weight and fetal brain and kidney weight, embryotoxicity, fetotoxicity, and neonatal mortality. However, no teratogenicity in experimental animals has been documented.

Developmental effects reported in animals following chronic exposure to DDT included preweaning, mortality, and premature puberty. Reduced fertility has been observed in animals following acute oral exposure. Chronic exposure produced stillbirths, increased maternal and fetal mortality, delayed estrus, reduced male libido, and reduced mammary gland development. Abortions also occurred after chronic exposure. No human cancer studies have been documented; however, some species of animals have developed liver hepatomas, adrenal gland tumors, pulmonary adenomas, and malignant lymphomas.

OEHHA and EPA list an oral and inhalation CSF of 0.24 per (mg/kg-day)⁻¹ for DDD and an oral and inhalation CSF of 0.34 (mg/kg-day)⁻¹ for DDE and DDT (OEHHHA 1994, EPA 1998). EPA lists DDD, DDE, and DDT as B2 carcinogens (probable human carcinogens) producing lung tumors in mice, liver tumors in male mice, and thyroid tumors in male rats. The oral RfD for DDT is 0.0005 mg/kg-day (EPA 1998). This RfD is based on a 27-week rat feeding study which produced liver tumors. An uncertainty factor of 100 is used for the RfD to account for the uncertainty associated with interspecies conversion and to protect sensitive human subpopulations. This RfD has a medium confidence. No inhalation RfD is available for DDT. Additionally, no oral or inhalation RfDs are available for DDD and DDE.

1,4-Dichlorobenzene

1,4-Dichlorobenzene (1,4-DCB) is used as an insecticidal fumigant, particularly in the control of moths. Vapors from 1,4-dichlorobenzene may cause irritation of the skin, throat, and eyes. Prolonged exposures to high concentrations may cause weakness, dizziness, weight loss and liver injury.

EPA classifies 1,4-dichlorobenzene as a B2 carcinogen and lists an oral CSF of 0.024 (mg/kg-day)⁻¹ (EPA 1998). OEHHA lists oral and inhalation CSFs of 0.04 (mg/kg-day)⁻¹. These

values are based on the critical effect of liver tumor induction (OEHHA 1994).

EPA has developed an inhalation RfD for 1,4-dichlorobenzene of 0.23 mg/kg-day. The RfD is based on the critical effect of increased liver weights in laboratory animals and has an uncertainty factor of 100 (EPA 1998).

Endosulfan I, Endosulfan II, and Endosulfan Sulfate

Endosulfan I (also called alpha endosulfan) and endosulfan II (beta endosulfan) are the major isomers in commercial endosulfan. Endosulfan sulfate is registered and used in the U.S. widely as a contact insecticide on over 60 food and non-food crops. This pesticide is applied to crops before harvest as soon as insects appear. Worldwide, endosulfan is used on food crops such as tea, vegetables, and fruits as well as tobacco, cotton, and alfalfa (ATSDR 1993d).

The gastrointestinal tract is a site of endosulfan absorption following oral exposure in humans and animals. Endosulfan sulfate is distributed to the feces, small intestine, urine, visceral fat, liver, kidney, respired carbon dioxide, and blood in animals. The alpha isomer of endosulfan can accumulate throughout the body via oral exposure to a higher degree than the beta isomer. The alpha and beta isomers are both metabolized to endosulfan sulfate; all three of these chemicals are toxic to humans and animals. High levels of endosulfan were found primarily in the liver, intestine, and visceral fat in acute animal studies, whereas endosulfan and its metabolites were found in tissues and excreta following a chronic animal study. Increased enzyme activity was observed in hepatic and extrahepatic tissues. Orally administered endosulfan is excreted in both the feces and the urine of mice and rats, with the feces containing the majority of the pesticide. Unmetabolized endosulfan was found in the feces, but not the urine.

Acute oral and dermal exposure to endosulfan in humans and animals results in hyperactivity, tremors, decreased respiration, dyspnea, salivation, and tonic-clonic convulsions. Neurotoxicity is the primary effect observed in occupationally exposed humans following long-term inhalation exposure. Electroencephalographic abnormalities and convulsions were reported in workers exposed to insecticides containing endosulfan sulfate. Chronic oral exposure can result in brain damage either by direct action of endosulfan on the brain tissue, or by the hypoxia that accompanies the recurring seizures and respiratory problems seen in the first 2 weeks of ingestion. In rats, daily administration of endosulfan produced a significant increase in the percent of resorptions and skeletal and internal abnormalities of the fetuses. A dose-related increase in maternal deaths and enlarged uteri was observed.

HEAST presents an oral RfD of 0.006 mg/kg-day for endosulfan based on chronic rat feeding study (EPA 1997). The critical effects observed include decreased weight gain and kidney effects. An uncertainty factor of 100 is associated with the oral RfD which accounts for interspecies and intraspecies variations. No inhalation RfD is available. Additionally, no CSFs are available for endosulfan I, endosulfan II or endosulfan sulfate.

Endrin, Endrin Aldehyde, and Endrin Ketone

All uses of endrin in the U.S. were voluntarily canceled by the manufacturer in 1986. The past uses of endrin included insecticides, rodenticides, and avicides to control cutworms, voles, grasshoppers, borers and other pests on cotton, sugarcane, tobacco, apple orchards, and grain. Little is known about endrin aldehyde and endrin ketone. They are not commercially used but

are found as impurities in endrin (ATSDR 1990b).

There is sufficient data to show that endrin can be absorbed orally in significant quantities. A variety of human poisoning incidents indicate that the stomach, liver, kidney, brain, heart, adipose tissue, and blood are deposition locations. Endrin is converted to anti- and syn-12-hydroxyendrin and 12-ketoendrin which are more toxic than endrin and are most likely the toxic entity of endrin. Endrin and its metabolites are detected in the urine and feces.

Human studies show that the nervous system is the major type of endrin toxicity. Twitching, jerking of muscles, dizziness, mental confusion, and epileptiform seizures occurred within the first few hours of occupational exposure. Abnormal electroencephalograms were usually observed in endrin-poisoned workers. The CNS is the primary target system of orally administered endrin. Acute poisoning produced jerking of arms and legs, tonic-clonic contractions, convulsions, and sudden collapse and death. In experimental studies, animals exhibited decreasing activity, convulsions, hyperirritability to stimuli, tremors, tonic-clonic convulsions, and ataxia. A significant increase in the incidence of fused ribs and cleft palate was observed in hamster fetuses when mothers were exposed to endrin. Convulsions, tremors, and twitching of facial muscles were the chief signs of intoxication of rabbits exposed dermally to endrin.

EPA lists an oral RfD for endrin (including the ketone and aldehyde) as 0.0003 (mg/kg-day) with an uncertainty factor of 100. The uncertainty factor accounts for interspecies and intraspecies variability. This RfD is based on the critical effects of liver lesions and occasional convulsions in a chronic dog study. The confidence for this RfD is medium (EPA 1998). No inhalation RfD is available. Additionally, EPA has not developed CSFs for these chemicals.

Heptachlor and Heptachlor Epoxide

Heptachlor is a persistent dermal insecticide and is nonphytotoxic at insecticidal concentrations. Heptachlor was used extensively from 1953 to 1974 as a soil and seed treatment protecting a variety of crops from pests. Heptachlor was also used nonagriculturally during this time period in the control of termites and household insects. EPA proposed cancellation of nearly all registered uses of heptachlor in 1974 because of its potential cancer risk and its persistence and bioaccumulation throughout the food chain. Subsequently, virtually all uses of heptachlor products were voluntarily canceled in 1990, and the only commercial use of heptachlor products still permitted is fire ant control in power transformers (ATSDR 1993c).

Heptachlor is a component of the pesticide chlordane (approximately 10 percent by weight). Heptachlor epoxide is a breakdown product of heptachlor. Heptachlor epoxide is not manufactured and is not used as an insecticide. Heptachlor epoxide is produced by bacteria in the environment, and is also made by animals and people when heptachlor enters their bodies.

Heptachlor is absorbed from the gastrointestinal tract of animals as indicated by the presence of heptachlor and/or its metabolites in serum, fat, liver, kidney, and muscle after oral exposure. However, an inhalation animal study only found heptachlor epoxide in fat. Animal studies have shown that heptachlor undergoes epoxidation producing heptachlor epoxide, which is more toxic than its parent compound. Heptachlor epoxide is then metabolized and excreted. In an in vitro liver study, human and rat liver microsomes metabolized heptachlor to the same products but in different proportions. Animal studies have shown that the highest concentrations of heptachlor

and its metabolites were found in the fat, and markedly lower amounts were found in the liver, kidney, and muscles. The majority of the heptachlor and its metabolites were eliminated via the bile into the feces. There is evidence of transplacental as well as lactational transfer to human fetuses.

Placental transfer of heptachlor epoxide in human infants has been reported after inhalation exposure. Hyperexcitability, incoordination, paralysis of the hind legs, difficulty in walking or standing, loss of the righting reflex, whole-body tremors, and self-mutilation include some of the reactions observed in a variety of animals after ingestion of heptachlor. Ingestion of heptachlor seemed to severely decrease the pregnancy rate in rats.

The oral RfD for heptachlor as presented is 0.0005 mg/kg-day (EPA 1998). This RfD is based on a chronic feeding study with the critical effect of increased liver weight in male rats. The uncertainty factor is 300 to account for interspecies variation, intraspecies variation, and lack of chronic toxicity data in a second species. The confidence for this RfD is low. No inhalation RfD is available for heptachlor.

Heptachlor epoxide's oral RfD as presented in IRIS is 0.000013 mg/kg-day, with an uncertainty factor of 1,000 (EPA 1998). The uncertainty factor accounts for interspecies variation, intraspecies variation, and for the fact that a no observed adverse effect level was not attained. This study is based on a 60-week dog feeding study in which the critical effect was increased liver to body weight ratio. The confidence for this RfD is low. No inhalation RfD is available for heptachlor epoxide.

EPA has classified heptachlor and heptachlor epoxide as B2 carcinogens (probable human carcinogen). EPA lists CSF for heptachlor and heptachlor epoxide of $4.5 \text{ (mg/kg-day)}^{-1}$ and $9.1 \text{ (mg/kg-day)}^{-1}$, respectively, for oral exposure (EPA 1998). OEHHA lists an oral and inhalation CSF for heptachlor and heptachlor epoxide of $5.7 \text{ (mg/kg-day)}^{-1}$ and $130 \text{ (mg/kg-day)}^{-1}$, respectively (OEHHA 1994).

Manganese

Manganese is an essential trace mineral with many oxidation states. Although its main use is in iron and copper alloys, it is also used in dry cells, in matches and pyrotechnics, and in a variety of chemical processes (ATSDR 1992d).

Manganese may enter the body through various routes, where it may be absorbed, metabolized, or excreted. Only a small portion of ingested manganese is absorbed; however, absorption from the lung is more complete. Manganese is concentrated in the bone, liver, kidney, and erythrocytes. Divalent manganese is an essential component of several widely distributed enzyme systems involved in protein and energy metabolism. Manganese interacts in a variety of ways with other divalent cations, especially at high doses. Manganese is excreted in the bile, and some is reabsorbed from the small intestine.

Manganese has low acute toxicity, with the main effect being local irritation. With repeated doses, the irritation leads to a pneumonitis called "manganese pneumonia," which can be lethal. However, the main chronic effect is "manganism," a central neuropathy. This psychiatric disorder is first seen as irritability, disturbances in gait and speaking, and compulsive behavior. It progresses to a syndrome identical to Parkinson's Disease and can be treated with the same

drugs. Autopsies show characteristic brain lesions and often liver lesions. There is no evidence for carcinogenicity or reproductive toxicity from excessive exposure to manganese. However, in animal studies, manganese deficiency in the mother produces some toxicity in offspring.

The Region IX Preliminary Remediation Goals (PRGs) lists an oral RfD of 0.047 mg/kg-day for drinking water, with an uncertainty factor of 1 (EPA 1996). EPA has an oral RfD of 0.14 mg/kg-day for food ingestion (EPA 1998). The RfD is based on human chronic ingestion data for drinking water and food ingestion. An uncertainty factor of 1 is applied to drinking water RfD due to various cross-sections of human populations. For food ingestion the uncertainty factor is also 1 to account for sensitive subpopulations. EPA also lists an inhalation RfD for manganese of 0.000014 mg/kg-day with an uncertainty factor of 1,000 for food ingestion only. Manganese is a class D carcinogen (not classifiable in EPA's weight-of-evidence classification system).

Methoxychlor

Methoxychlor is a chlorinated ethane insecticide; its structure is that of DDT with methoxy groups replacing the aromatic chlorine groups (ATSDR 1994c).

The biological effects of methoxychlor and DDT are very similar qualitatively, but different quantitatively. DDT and its metabolites DDD and DDE are persistent in the environment and are stored in the body fat of higher organisms, leading to biomagnification (i.e., low levels in the environment become concentrated to higher levels with each rise in the food chain).

Methoxychlor is much less persistent, having a lower storage in fat ratio and a much shorter biological half-life (1-2 weeks in the rat compared to 6 months for DDT).

The primary site of toxic action in DDT and methoxychlor poisoning is the sensory and motor nerve fibers and the motor cortex in the brain. Symptoms of poisoning include dizziness, disturbed equilibrium, tremor, and convulsions; however, unlike the cyclodienes, convulsions are generally preceded by less severe symptoms. Liver damage is also characteristic. Methoxychlor appears to be far less toxic, despite its similar effects; the oral LD₅₀ in rats is 20 to 50 times the oral LD₅₀ of DDT and its degradation products.

Methoxychlor is not classified as to human carcinogenicity (class D), because human data are unavailable and animal evidence is inconclusive, despite a variety of animals studies performed.

EPA prevents an oral RfD of 0.005 mg/kg-day with an uncertainty factor of 1,000 to account for inter- and intra-species differences and for incompleteness of data (EPA 1998). The RfD study is based on a rabbit teratology study. No inhalation RfD is available for methoxychlor.

Methyl Ethyl Ketone (2-Butanone)

Methyl ethyl ketone is a solvent and degreaser with a wide range of applications and uses (Krasavage and others 1982; NLM 1995).

Although there is limited toxicity information on 2-butanone, it appears to be relatively nontoxic. It is absorbed through the skin and following ingestion and inhalation. Excretion is in expired air and the urine. This compound is considered to be slightly more irritating to mucous membranes and the conjunctiva than acetone and can produce dermatitis with prolonged skin contact. It affects the CNS and irritates the eyes, nose, and skin, but only at high concentrations. High

atmospheric concentrations can produce CNS depression. There is also evidence of polyneuropathy and numbness of the extremities in long-term occupationally exposed workers. No evidence of adverse effects exists from chronic exposure to low concentrations, but chronic studies in animals are inadequate. Preliminary studies indicate that methyl ethyl ketone can cause teratogenicity and retarded fetal development. The effects of some hepatotoxins are potentiated by methyl ethyl ketone.

The compound is a class D carcinogen (not classifiable) in EPA's weight-of-evidence classification system, indicating that there is a lack of human data and insufficient animal data (EPA 1998). The oral RfD for methyl ethyl ketone is currently 0.6 mg/kg-day with an uncertainty factor of 3,000 (EPA 1998). The inhalation RfD for methyl ethyl ketone is 0.29 (mg/kg-day) with an uncertainty factor of 1,000 (EPA 1998).

Mercury

Mercury is a naturally occurring metal present in soil at very low concentrations of approximately 0.03 mg/kg. It is used in a number of products, including thermometers, mirrors, batteries, fungicides, pesticides, paints, and pharmaceuticals. Mercury has been used historically in marine antifouling paint and in paper pulp industries, and is currently used as a catalyst in chloralkali plants. Mercury is naturally present in foods, and the normal adult dietary intake is about 3.5 µg per day.

Both inorganic and organic forms of mercury are toxic to humans and experimental animals. In general, the organic forms are more toxic than the inorganic forms. In humans, the kidney and CNS are the main sites affected by mercury. Elemental mercury can cross the blood-brain barrier, where it produces neuropathies in both the central and peripheral nervous systems. The lesions are manifest as tremors in the extremities and neuropsychiatric disturbances such as irritability, insomnia, and emotional instability. Chronic intake of divalent mercury can result in kidney disease. In addition to systemic effects, dermal exposure to mercury can result in contact sensitization dermatitis.

EPA has classified mercury in Group D, not classifiable as to human carcinogenicity. Epidemiologic studies in humans failed to show a correlation between exposure to elemental mercury vapor and carcinogenicity. Possible or known concurrent exposures to other chemicals, including human carcinogens, as well as lifestyle factors, have confounded the results of the epidemiologic studies. Findings from genotoxicity tests are severely limited and provide equivocal evidence that mercury adversely affects the number or structure of chromosomes in human somatic cells.

Elemental mercury is well absorbed (80 to 100 percent) following inhalation exposure. Elemental mercury and inorganic mercury salts are generally poorly absorbed following ingestion: oral absorption is estimated to be about 0.1 percent for metallic mercury and 2 to 15 percent for inorganic mercury salts. Limited information indicates some absorption of elemental and inorganic mercury salts following dermal exposure. The pharmacokinetics of absorption, distribution, and excretion are highly dependent on the particular chemical state and valency of mercury. For example, divalent mercury and elemental mercury accumulate in the kidney, whereas only elemental mercury effectively crosses the blood-brain barrier.

The inhalation RfD is 0.000086 mg/kg-day (EPA 1998). This value was derived from a RfC of 0.0003 mg/m³ and is based on studies of humans occupationally exposed to concentrations of approximately 0.009 mg/m³ mercury. The critical effect noted was neurotoxicity, including hand tremors, increases in memory disturbances, and evidence of autonomic dysfunction. An uncertainty factor of 30 was used to account for intraspecies variability, extrapolation from a LOAEL to a NOAEL in the principle study, and a lack of developmental and reproductive studies. Confidence in the RfC is medium.

Molybdenum

Molybdenum is found most frequently in the form of the mineral molybdenite. It is used in the production of high-temperature resistant steel alloys for use in gas turbines and jet aircraft engines (Carson, Ellis and McCann 1986, NLM 1995).

Molybdenum is well absorbed from the gastrointestinal tract and is stored in concentrated form in the liver, kidneys, and adrenal gland. There is little, if any, absorption of the various compounds from the lungs.

Molybdenum is a recognized essential element for humans. It is a cofactor for several important enzymatic reactions. The principal toxic effect associated with molybdenum exposure at high concentrations is its ability to interfere with copper metabolism. It can also cause fatty degeneration of the liver and kidneys. However, there are no reports of molybdenum toxicity due to industrial exposure.

The carcinogenic potential of molybdenum is unknown. EPA has an oral RfD for molybdenum of 0.005 mg/kg-day with an uncertainty factor of 30 (EPA 1998). This RfD is based on changes in biochemical enzymes, pain and swelling of joints, and decreased levels of copper in the blood. No inhalation RfD is available for molybdenum.

Nickel

The principal use of nickel is nickel plating and the manufacture of steel and other metal alloys. Nickel is poorly absorbed from the gastrointestinal tract. Upon reaching the systemic circulation, however, it concentrates in the kidneys and liver. The major route of excretion is urinary. At low levels, nickel is an essential trace mineral for some animals and may also be essential to humans (Beliles 1975, EPA 1998). Despite the lack of conclusive evidence as a human nutritional requirement, nickel is considered a normal dietary constituent at low levels.

The particular form of nickel greatly influences its bioavailability and, consequently, its systemic toxicity. It has been demonstrated, for example, that there may be a 40-fold difference in absorption from the gastrointestinal tract between water soluble and nonsoluble forms. Nickel has not been shown to produce significant acute toxicity. Contact dermatitis and allergic sensitization are the most common toxicological effects and typically result from wearing nickel-containing jewelry. Dermal effects, however, can also be produced from systemic ingestion.

The major chronic effect of exposure to nickel is cancer of the respiratory tract resulting from inhalation of nickel dust. Changes in the blood may also include an increase in circulating leukocytes and platelets.

Nickel is a class A carcinogen based on the incidence of lung cancers in epidemiological studies (EPA 1998). The EPA and OEHHA inhalation CSFs are 0.84 and 0.91 (mg/kg-day)⁻¹, respectively (EPA 1998, OEHHA 1994).

The oral RfD for nickel salts is 0.02 mg/kg-day, with an uncertainty factor of 300 (EPA 1998). This RfD is based on the critical effects of decreased body and organ weights in experimental animals. Dermotoxicity and fetotoxicity are also sensitive adverse symptoms of exposure and were also considered in the derivation of this value.

Phthalates

Phthalate esters are widely used in polymer products as plasticizers, are common in the environment, and are detected in virtually all soil and water ecosystems. Some very flexible products may be half phthalate esters by weight. The most widely used phthalate monomers include di-n-butyl phthalate, n-butyl benzyl phthalate, diethylphthalate, dimethylphthalate, di-n-octyl phthalate, and bis(2-ethylhexyl)phthalate, which is perhaps the best studied phthalate (Sandmeyer 1981, ATSDR 1993f, ATSDR 1994d, ATSDR 1995a, NLM 1995).

Phthalates are slowly absorbed from the GI tract. There is no evidence of significant absorption via the lung or skin. Once absorbed, they are rapidly hydrolyzed to water soluble phthalic acid, which is excreted in the urine, and to compound-specific alcohols, which are generally metabolized to carbon dioxide. With the exception of a few rare phthalates, the combination of poor absorption and rapid metabolism prevents the development of acute toxic effects from most exposures.

The most common adverse effects are local irritation including eye inflammation, eczema, nausea, abdominal cramps, and mild CNS depression. Repeated doses of phthalate monomers in experimental animals produce lesions in the liver and testes. Phthalates can also cause general adverse, but nonspecific, effects on fetuses.

The particular toxic effects of bis(2-ethylhexyl)phthalate are discussed below.

Bis(2-ethylhexyl)phthalate (BEHP)

BEHP is the most widely used phthalate and has a relatively low acute toxicity. The median lethal dose (LD_{50}), delivered intra peritoneally, is between 13 and 16 grams per kilogram (g/kg) in mice. BEHP produces increased liver weight and disrupts lipid metabolism in experimental animals following chronic oral exposure. It is both fetotoxic and teratogenic, and causes decreased fertility and damage to seminiferous tubules in mice and rats.

BEHP is a class B2 carcinogen based on liver tumor formation in experimental animals (EPA 1998). The EPA oral CSF is 0.014 (mg/kg-day)⁻¹; no inhalation CSF is available (EPA 1998). The OEHHA oral and inhalation CSFs are both 0.0084 (mg/kg-day)⁻¹ (OEHHA 1994). The oral RfD for BEHP is 0.02 mg/kg-day with an uncertainty factor of 1,000 (EPA 1998). This RfD is based on the critical effect of increased liver weight. No inhalation RfD is available for BEHP.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are among the most persistent man-made compounds in the environment, resisting degradation for years. This family of compounds contains 209 individual isomers. Because they have excellent insulating and nonflammable properties, PCBs have been used widely as coolants and lubricants. The most common PCB products in the U.S. are a series of mixtures trade named "Aroclors"; that name is often used as a general term for the class. The manufacture of PCBs was halted in 1977 due to bioaccumulation in the environment (ATSDR 1993f, NLM 1995).

PCBs are well absorbed from the stomach, skin, and lungs. PCBs initially concentrate in the liver, blood, and muscle, but soon are sequestered into adipose tissue, where they have a long half-life. PCBs are metabolized to biphenyls, biphenyldiols, and dihydrodihydroxybiphenyls. Excretion occurs through urine and feces. Although there are species variations, the more highly chlorinated compounds are excreted more in the feces and are less readily metabolized than less chlorinated isomers.

Animal studies reveal a considerable variation in equipotent doses between species of both animals and PCBs. However, in comparable studies, the more chlorinated mixtures are more toxic, this trend holds for most studies, from acute carcinogenicity studies.

In humans, the primary acute toxic effect of PCBs is chloracne. No distinctive acute effects have been reported in animals. Chronic ingestion of PCBs causes "Yusho Disease," named after the town of Yusho, Japan, where an epidemic occurred when residents ate PCB-contaminated food for several months. Chloracne develops after a latent period along with hyper-pigmentation of skin areas, visual disturbances, GI distress, jaundice, and lethargy. Infants from exposed mothers had low birth weight and pigment blotches. Some of these effects have, however, been ascribed to the chemically-related polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD and PCDF), which are byproducts found in most complex mixtures of PCBs. Industrial exposure, which is generally limited to dermal contact, produces chloracne and, in severe cases, hepatotoxicity.

Animal studies have indicated that some PCB mixtures produce adverse health effects that include liver damage, reproductive and developmental effects, and cancer. In one study, PCBs were reported to be human developmental toxicants (Tilson 1990).

EPA considers PCBs B2 carcinogens (probable human carcinogens) and has recently derived an oral CSF of 2 (mg/kg-day)⁻¹ for Aroclor-1260 (EPA 1998). OEHHA has assigned PCBs an oral and inhalation CSF of 7.7 (mg/kg-day)⁻¹ (OEHHA 1994). Aroclor-1254 has an oral RfD of 0.00002 mg/kg-day with an uncertainty factor of 300 (EPA 1998). Aroclor-1016 has an oral RfD of 0.00007 mg/kg-day with an uncertainty of 100 (EPA 1998). No oral RfDs are available for Aroclor-1242 or Aroclor-1260. Additionally, no inhalation RfDs are available.

Polycyclic Aromatic Hydrocarbons

Polycyclic (or polynuclear) aromatic hydrocarbons (PAHs) are a diverse class of chemicals containing three or more fused aromatic hydrocarbon rings. (Although not technically classified as PAHs, the 2-member ringed compounds, naphthalene and 2-methylnaphthalene are included in this discussion of PAHs.) They are formed during the incomplete combustion of organic substances such as coal, oil, and gas. These compounds are found in the air attached to dust

particles, and they are emitted from vehicle exhausts, asphalt roads, and wood- and coal-burning furnaces. With the exception of naphthalene, anthracene, acenaphthene, fluorene, phenanthrene, and fluoranthene, the only known use of PAHs is for research purposes. Historically, the principal use of naphthalene was the production of phthalic anhydride; however, o-xylene is replacing naphthalene for this use. The other major uses of naphthalene are in carbamate insecticides, surface active agents, resins, as a synthetic tanning agent, and as a moth repellent (moth balls). The other listed PAH have a variety of small-scale, specialized uses, such as intermediates in dye synthesis (all of them), scintillation counter crystals (anthracene), and liners for steel and ductile iron drinking water pipes and storage tanks (fluoranthene). The carcinogenic PAHs discussed here include benzo(a)anthracene, benzo(a)pyrene (BAP), benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene. BAP is the most studied PAH and one of the most potent; it is generally considered the prototypical PAH. The noncarcinogenic PAHs include 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene (ATSDR 1987, ATSDR 1990c, ATSDR 1990d, ATSDR 1990e, ATSDR 1990f, ATSDR 1995b, ATSDR 1995c).

Absorption of BAP and other PAHs has usually been demonstrated indirectly, because toxic effects have been seen following oral and inhalation exposure. Some dermal absorption also occurs. PAHs are oxidized in the liver by an enzyme, aryl hydrocarbon hydroxylase (AHH), to the epoxide, which hydrolyses to the more water-soluble hydroxy or dihydroxy derivative. The metabolites are the active forms of the chemicals; variations in the formation (amount, rate, products) of these metabolites account for the different effects of the various PAHs. PAHs also induce the synthesis of greater quantities of AHH and other drug metabolizing enzymes; therefore, simultaneous exposure to PAHs and other toxicants may increase or decrease the toxicity of the other chemicals. PAHs are excreted as a large variety of oxidized and conjugated metabolites, through the bile into the feces and, to a lesser extent, in the urine.

Single, acute oral and dermal doses of PAHs are practically nontoxic to animals; no human data are available. Repeated doses of straight-chain PAHs (naphthalene, anthracene, pentacene, and others) also have little effect. These PAHs in large doses produce weight loss, possibly blood effects (even aplastic anemia), and some liver and kidney lesions, but do not seem to be carcinogenic. Other PAHs, such as BAP, are carcinogenic after repeated doses through the oral, inhalation, and dermal routes. Tumors develop at the entry site (stomach, respiratory tract, skin) and in the liver, and occasionally at other non-specific sites. Other effects are similar to those of the straight-chain PAHs. Dibenzo(a,h)anthracene was the first pure chemical shown to be carcinogenic to animals in experiments during the 1920s, while coal soot, now known to be composed primarily of PAHs, was recognized by Sir Percival Pott as the cause of scrotal cancers in chimney sweeps in 1775. Several of the PAHs, including BAP, are routinely used in the laboratory to induce tumors in rodents; a few laboratory workers have developed similar tumors from accidental exposures to these chemicals. Except for those laboratory accidents, all human data are for exposure to complex mixtures where it is impossible to determine the effects of specific chemicals. However, PAHs are believed to be the principal carcinogenic component of tobacco smoke and similar mixtures. PAHs are usually highly mutagenic if activated by liver enzymes. The carcinogenic PAHs are also immunotoxic; the more potent carcinogens are also more potent immunosuppressants.

PAHs have little, if any, reproductive toxicity in the few available studies, except in parenteral studies of BAP in rodents. Most adverse effects were nonspecific, such as decreased birth

weight and sterility, and were at relatively high doses. The potency of BAP as a reproductive toxicant was markedly affected by inborn differences in metabolism among various strains of mice, emphasizing the importance of metabolism to the toxicity of these compounds. Decreased maternal weight gain and hematological changes were seen in pregnant rats administered BAP daily during gestation.

According to EPA and HEAST, the carcinogenic PAHs are B2 carcinogens (probable human carcinogens). EPA lists an oral CSF of 7.3 (mg/kg-day)⁻¹ for BAP; an inhalation CSF is unavailable (EPA 1998). OEHHA lists an oral CSF of 12.0 (mg/kg-day)⁻¹ and an inhalation CSF of 3.9 (mg/kg-day)⁻¹ for BAP and an oral and inhalation CSF of 4.1 (mg/kg-day)⁻¹ for dibenzo(a,h)anthracene. CSFs for carcinogenic PAHs other than BAP are based on the potency equivalency factor (PEF) system. The following PEFs were used for carcinogenic PAHs (EPA 1998); the PEFs suggested by OEHHA are presented in parentheses (OEHHA 1994).

<u>Compound</u>	<u>PEF</u>
Benzo(a)anthracene	0.1 (0.1)
Benzo(a)pyrene	1.0 (1.0)
Benzo(b)fluoranthene	0.1 (0.1)
Benzo(k)fluoranthene	0.01 (0.1)
Chrysene	0.001 (0.01)
Indeno(1,2,3-cd)pyrene	0.1 (0.1)

The following reference doses for noncarcinogenic PAHs were obtained from EPA (1998):

<u>Compound</u>	<u>Oral Reference Dose (mg/kg-day)</u>	<u>Inhalation Reference Dose (mg/kg-day)</u>	<u>Uncertainty Factor</u>
Acenaphthene	0.06	not available	3000
Anthracene	0.3	not available	3000
Fluoranthene	0.04	not available	3000
Fluorene	0.04	not available	3000
Pyrene	0.03	not available	3000

Selenium

Although selenium is widely distributed at low levels in nature, it is often found to be concentrated as a byproduct of copper refining at mining sites. Selenium has a variety of uses, which have included fungicides, insecticides, and an antidandruff agent. It is considered an essential element. It is thought to substitute for phosphate in certain biochemical reactions and serve as a lipid antioxidant, in which it may substitute for vitamin E. Selenium deficiencies have been shown to result in degenerative muscle disease and retarded growth in experimental animals (Stokinger 1981, ATSDR 1989).

Elemental forms are probably not absorbed from the gastrointestinal tract. There appears to be a homeostatic mechanism for maintaining a certain level of selenium in the body. Selenium is preferentially deposited in the kidneys and liver and is primarily excreted in the urine. When excretory capabilities are exceeded, toxicity can develop.

Acute poisoning symptoms as seen in industrial exposures may include nervousness, drowsiness,

and convulsions. Chronic inhalation exposure may cause gastrointestinal disorders, liver and spleen damage, anemia, mucosal irritation, and lumbar pain. Chronic ingestion of high levels in food can result in discolored and decayed teeth, skin eruptions, gastrointestinal distress, lassitude, and hair and nail loss.

Selenium is a class D carcinogen based on inadequate animal and human data (EPA 1998). The oral RfD for selenium is 0.005 mg/kg-day which is associated with an uncertainty factor of 3 (EPA 1998). The critical effect is based on clinical selenosis. No inhalation RfD is available for selenium.

Thallium

Thallium is a relatively rare metal that exists in a variety of combinations with iron, copper, sulfide, and selenium. It has been used as a rodenticide, but was banned in the United States in 1972 because of unintended poisoning of birds and other animals, as well as accidental exposures in small children. Currently, thallium has several minor uses as alloys for electrical and electronic devices (Carson, Ellis, and McCann 1986; ATSDR 1992e).

Thallium is readily absorbed from the gastrointestinal tract and through the skin and is distributed in a pattern much like that of potassium. Because its chemical properties are similar to potassium, it can substitute for this essential element in biochemical reactions, leading to disruptions of normal cellular metabolism. Following high doses, thallium is concentrated in the kidney and urine. The body burden of thallium can increase for a protracted period because it is excreted slowly.

Toxic effects of thallium have been well characterized after many years of medicinal and pesticide use. Following acute doses, even lethal ones, effects do not appear until many hours or even days after exposure. Multiple symptoms range from gastrointestinal disturbances, limb pain and paralysis, polyneuritis, high blood pressure, optic nerve atrophy and blindness, psychic excitement, liver and kidney lesions, and lymphocytosis. With chronic exposure, a latent period is also observed with no clinical signs. When symptoms do appear, they are manifest as polyneuritis, optic nerve atrophy, and eyebrow loss. Thallium does not appear to exert any reproductive toxicity, although it has been shown to be fetotoxic in experimental animals.

EPA has not determined the carcinogenic potential or derived an oral or inhalation CSF for thallium (EPA 1998). The oral RfD for thallium is dependent on the species; several oral RfDs are currently listed for the different forms of thallium. EPA lists an oral RfD of 0.00009 mg/kg-day for thallium acetate and thallium nitrate (EPA 1998). An oral RfD of 0.00008 mg/kg-day has been established for thallium carbonate, thallium chloride, and thallium sulfate. The RfDs are based on subchronic studies on rats; the RfDs have an uncertainty factor of 3,000 to account for subchronic data, intraspecies extrapolation, interspecies variability, and lack of reproductive and chronic toxicity data. The toxicity values for thallium carbonate are used for the purposes of the Tier 2 screening evaluation.

1,2,4-Trichlorobenzene

The compound 1,2,4-trichlorobenzene is used as a solvent in chemical manufacturing, dyes and intermediates, dielectric fluid, synthetic transformer oils, lubricants, heat-transfer medium, and insecticides. In the environment, 1,2,4-trichlorobenzene is a likely degradation product of

lindane (gamma-BHC) (NLM 1995).

There is little information on the toxicity of 1,2,4-trichlorobenzene. EPA has not determined the carcinogenic potential or derived a slope factor for 1,2,4-trichlorobenzene (EPA 1998).

1,2,4-Trichlorobenzene has an oral RfD of 0.01 mg/kg-day based on the critical effects of increased adrenal weight. The RfD has an uncertainty factor of 1,000 (EPA 1998). HEAST lists an inhalation RfD of 0.057 mg/kg-day for 1,2,4-trichlorobenzene (EPA 1997).

1,1,1-Trichloroethane

The compound 1,1,1-trichloroethane, known commercially as methyl chloroform, is widely used as a nonflammable solvent. It is probably the least toxic of the common chlorinated solvents (ATSDR 1995d).

1,1,1-Trichloroethane may enter the body through all routes where it is excreted or metabolized. It is completely absorbed after ingestion, well absorbed after inhalation, and slowly absorbed through the skin. It is concentrated in fat and in organs with high levels of fat, such as the brain. Most is exhaled unchanged, but small amounts are metabolized to trichloroethanol and other metabolites, and subsequently excreted in the urine.

The primary effects of acute exposure are central nervous system depression and mild irritation. However, when 1,1,1-trichloroethane was studied as a general anesthetic, it was found to produce cardiac sensitization, and sometimes lethal arrhythmias. Chronic toxicity, which is rarely reported in humans, usually involves kidney and liver lesions.

EPA has classified 1,1,1-trichloroethane as RfD a D carcinogen (1998); oral and inhalation CSFs are unavailable. The oral RfD for 1,1,1-trichloroethane is 0.09 mg/kg-day with an uncertainty factor of 1,000. This RfD is based on the critical effects of hepatotoxicity (EPA 1998). The inhalation RfD is 0.29 mg/kg-day with an uncertainty factor of 1,000 (EPA 1998).

Vanadium

Vanadium is found throughout the environment and is contained in many foods, particularly fats and oils. It occurs in several ores and is a byproduct of petroleum refinement. It may have useful if not essential effects for hematopoiesis, cholesterol metabolism in the liver, and dental health (Carson, Ellis, and McCann 1986, ATSDR 1992f).

It may have useful if not essential effects for hematopoiesis, cholesterol metabolism in the liver, and dental health. The typical human body burden of vanadium averages 30 mg, stored primarily in adipose tissue. A homeostatic mechanism probably operates to control blood levels, and excretion is via the kidneys and urine (Beliles 1975).

The toxic effects are primarily in the lungs, where irritation, bronchitis, and bronchopneumonia have been attributed to industrial vanadium exposure. Other effects noted from industrial exposures are eye and skin irritation, gastrointestinal distress, cardiac palpitation, tremor, nervous depression, and kidney damage (Beliles 1975). Acute effects in animal experiments are manifest primarily as nervous system disorders, where vanadium poisoning produced convulsions, paralysis, and respiratory depression at lethal doses. At lower doses, constriction of the blood vessels of the lungs, spleen, kidneys, and intestines was observed. Air pollution

containing vanadium and cadmium has been postulated to be associated with heart disease (Beliles 1975).

The carcinogenic potential for vanadium has not been determined by EPA; oral CSF and inhalation CSFs are unavailable. HEAST lists the oral RfD for vanadium as 0.007 mg/kg-day with an uncertainty factor of 100 (EPA 1997). The RfD is based on a chronic water ingestion study in rats. There are no critical effects associated with this value. No inhalation RfD is available for vanadium.

Zinc

Zinc is an essential nutrient and a low-potency toxicant. Zinc is mostly used as a protective coating for other metals. It is also used in alloys such as bronze and brass, for electrical apparatus in many common goods, and in organic chemical extractions and reductions (Carson, Ellis, and McCann 1986; ATSDR 1994e).

Soluble zinc compounds are well absorbed. However, if an individual has full body stores, normal homeostatic mechanisms will decrease absorption or increase excretion to maintain normal levels. In rats, cadmium is an antimetabolite of zinc: the two counter each other's actions. In the body, zinc is ubiquitously distributed to become part of numerous vital enzyme systems. Excretion is via pancreatic fluid and bile into the feces.

Zinc toxicity is rare in humans, probably because of the normal homeostatic mechanisms. However, drinking acidic beverages from galvanized containers or prolonged use of galvanized water pipes can cause fever, nausea, vomiting, cramps, and diarrhea. Foundry workers exposed to zinc by inhalation exhibit a characteristic effect called "metal fume fever," whose major symptoms are chills and fever. Subchronic and chronic toxicity studies generally report no observed adverse effects. Fetal health risks may result from zinc deficiency since it is required for normal fetal growth and development. No carcinogenicity studies were found. No evidence of mutagenicity or teratogenicity were found in the few studies reported.

The oral RfD is 0.3 mg/kg-day, taken from a human diet supplement study (EPA 1998). A substantial decrease in erythrocyte superoxide dismutase concentration in adult females occurred after 10 weeks of zinc exposure. An uncertainty factor of 3 was used based on a minimal lowest observed adverse effect level from a moderate-duration study of the most sensitive humans and consideration of a substance that is an essential dietary nutrient. The confidence for this RfD is medium. No inhalation RfD is available.

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